The reproduktive success of the elites in Germany, Great Britain Japan and the USA during the 19th and 20th century

Müller, Ulrich

Veröffentlichungsversion / Published Version
Forschungsbericht / research report

Zur Verfügung gestellt in Kooperation mit / provided in cooperation with:
GESIS - Leibniz-Institut für Sozialwissenschaften

Empfohlene Zitierung / Suggested Citation:
Müller, U. (1991). *The reproduktive success of the elites in Germany, Great Britain Japan and the USA during the 19th and 20th century.* (ZUMA-Arbeitsbericht, 1991/22). Mannheim: Zentrum für Umfragen, Methoden und Analysen -ZUMA-. https://nbn-resolving.org/urn:nbn:de:0168-ssoar-69053

The Reproductive Success of the Elites in Germany, Great Britain, Japan and the USA during the 19th and 20th Century.

Ulrich Mueller

Center for Survey Research and Methodology
Mannheim, Germany

ZUMA-Arbeitsbericht Nr. 91/22

Zentrum für Umfragen, Methoden und
Analysen e.V. (ZUMA)
Postfach 12 21 55
D-6800 Mannheim 1

Seit Juli 1983 sind die ZUMA-Arbeitsberichte in zwei Reihen aufgeteilt:

Die **ZUMA-Arbeitsberichte** (neue Folge) haben eine hausinterne Begutachtung durchlaufen und werden vom Geschäftsführenden Direktor zusammen mit den übrigen Wissenschaftlichen Leitern herausgegeben. Die Berichte dieser Reihe sind zur allgemeinen Weitergabe nach außen bestimmt.

Die **ZUMA-Technischen Berichte** dienen zur hausinternen Kommunikation bzw. zur Unterrichtung externer Kooperationspartner. Sie sind nicht zur allgemeinen Weitergabe bestimmt.

Acknowledgements

The author is indebted to Professor Toshio Yamagishi (Sapporo, Japan) for his indispensible, patient support, and Professor Antony E. Wrigley (Cambridge, Great Britain) for giving access to British cohort life tables. The data sets were collected by Christa von Briel, Roger Haag, Sabine Mathes, Ai Sato, Eric Sohnle, Christian Stolcke, Ingrid Tomkowitz and Sae Yamauchi. Bernhard Schimpl-Neimanns gave technical assistance with the German census data.

Abstract

For many modern societies an inverse relationship exists between occupation/status group and average number of children. Within this context, the reproductive success of elites in modern societies has received special attention. This study tried to avoid some of the shortcomings of previous studies: by analyzing long time series (birth cohorts from 1820 on); by comparing elite reproduction not only with the total population, but also with the top occupation census class average; by taking into consideration infant mortality and mean generation length differentials; by considering sex differentials in reproduction in the second generation; by considering mechanisms of longterm reproduction strategies beyond fecundity differentials. For Germany, Great Britain and Japan a positive reproduction differential for elites is demonstrated. For the USA, a positive differential also is likely, but the evidence, however, is inconclusive, probably due to the effects of immigration and fast population growth in the last, and during the first decades of this century.

1. Introduction

1.1. Problem

In all known societies we can observe an unequal distribution of wealth and power. Studying the reproductive success of members of the national elite, who have the largest relative share of wealth and power at their hands - whether we take the upper .001, .01, or .1 percent of a society - has implications far beyond studying the demographic characteristics of any other small group. It has implications for the social mobility and even political dynamics of the society as a whole. In addition, it is a test field for central predictions of evolutionary biology.

The mechanism by which new members of the elite are recruited is an essential feature of every society. All other things being equal, any social mobility will be determined by a collusion between differential fecundity and established succession rules, which via inheritance laws, rules of access to education, and the constitution of the labor markets determine how outgoing generations are replaced by new generations.

Let us start with two extreme alternatives: In certain despotic societies rulers used to have large harems. Dickemann quotes a description of Chinese Imperial Harem procedures, "involving copulation of concubines on a rotating basis at appropriate times in their menstrual cycles, all carefully regulated by female supervisors ... Given nine months pregnancies and two or three years lactations, it is not inconceivable that a hard working Emperor might have managed to service a thousand women ..." An early 20th century observer reported that the Nizan of Hyderabad became the father of four children in the space of eight days with 9 more expected the following week (Dickemann 1979, 165). During the Gulf war 1991 it could be read that the emir of Kuweit, Sheik Jaber el Sabah has fathered about 60 children with bedouin girls which were brought to him on Thursday evenings. The children were adopted into the Sabah clan (IHT February 14, 1991). If we assume that in such societies the ruler certainly is not the only polygynous male, then the obvious consequence of this monopolizing of fertile women must have been a considerable number of never married men in the lower strata of society, "disenfranchised celibate men consigned to life as soldiers, brigands, monks and the like" (Daly and Wilson 1983, 286). In such a society a high intergenerational social mobility must exist which in most cases will be directed downwards; only few elite members will have an father who was not a member of the elite himself. If, on the other hand, we imagine a society, where we have an inverse relation between relative share in wealth and power and reproductive success, where the poorer a family is, the more children it has, then we should expect the predominant social mobility to be directed upwards; a considerable part of the elite in any generation will consist of upstarts. One can speculate whether the first pattern of differential reproduction was a major demographic determinant of the remarkable political stability of even the most despotic and unequal societies in premodern times. On the other hand, one may speculate, whether democracy, which among other things means the constant influx of new people into the top percentage of power and wealth, may have a reproduction pattern of the second type as one of its demographic prerequisites.

For many animal species, especially primates, there is a vast body of evidence in favor of a positive relationship between privileged access to resources via dominance rank and differential reproductive success (surveys to be found in Dewsbury 1982; Smith and Smith 1988). Likewise, there is a vast body of evidence in favor of a positive relationship between dominance rank/high status and reproductive success in traditional societies, for example, the Yormut Turkmen of Iran (Irons 1979), the Yanomamö of Venezuela (Chagnon 1979), the Ifalukese of Micronesia (Turke and Betzig 1985), the Ache of Paraguay (Kaplan and Hill 1985), the rural population of Trinidad (Flinn 1986), the Kipsigis of Kenya (Mulder 1987; 1989). Reviews of additional evidence can be found in Betzig (1982; 1986) and Hill (1988). Similarly, a positive relationship could be established for a number of developed societies before industrialization: pre-industrial rural and urban Germany (Heckh 1952; Sachse 1987; Volland 1989; Weiss 1990), urban and village dwellers in Japan prior to 1920 (Matsumoto 1939; Hayami 1980), Imperial China and Colonial India (Dickemann 1979), 19th century Mormons (Faux et al. 1984), 15th - 16th century Portuguese Nobility (Boone 1986).

For modern societies, however, most observers have noted an inverse relationship between high social status and fecundity: "The general relationship is a negative one: the higher socioeconomic status groups have the lowest fertility" (Stockwell 1968,118). Wrong (1967; 1980) supplied a comprehensive survey of the literature before 1955. His time series can be extended into the present time. In tables 1 to 3 census figures are given for three of the four countries which will be investigated in this study. The two anglosaxon countries display an inverse, Germany an U-shaped relationship between occupation/status group and number of children, which for the vast majority of the population, however, also means a negative correlation.

(insert table 1-3 here)

The differential fecundity of elites in modern societies found the particular attention of many investigators. Members of the elites are extraordinarily successful individual members of high occupation/status groups. Most authors operationalize elite membership by a listing in biographical dictionaries of the Who-is-Who type. Some studies found a positive relationship between elite membership and reproductive success. Essock-Vitale (1984) demonstrated that the number of children ever born to the Forbes 400 - the 400 wealthiest individuals of the USA - in 1982 slightly exceeded the number of children ever born to US women in general. Sly and Ricards (1972) demonstrated an above average cumulative fecundity for men borne from before 1888 until 1923 simultaneously listed in the American Who-is-Who and the Social Register of 11 cities. Kirk (1957) on the other hand found a below-average fecundity for males in the 1956-57 volume of the American Who-is-Who. Johansson (1987) found a below replacment fecundity for some of the most priviledged social groups in Europe from early modern times to the first quarter of this century. Vining (1986) in an influential survey article also published original data on the American (Who-is-Who 1980/81) and Japanese (Jinji Koshinroku Sha 1955) elite, and for both found a fecundity below the national average. Interestingly, of the 27 peer commentaries accompanying Vining's article which were written

Table 1
Number of children ever borne to married women, by occupation class of husband, Germany 1970 Census, by year of birth and age of wife

Year of Birth	**1901 -05**	**1906 -10**	**1911 -15**	**1916 -20**	**1921 -25**	**1926 -30**
Age in years	**65-69**	**60-64**	**55-59**	**50-54**	**45-49**	**40-44**
I. Professions, Managerial and Executive Positions (1.8%)	2.18	2.03	2.08	2.05	2.10	2.04
II Semiprofessions, Technical and Service Specialities (8.5%)	1.69	1.84	1.84	1.77	1.79	1.85
III White collar workers and salaried employees (5.7%)	1.75	1.73	1.79	1.73	1.79	1.77
IV Blue collar workers, excl. Farm, Forest Fishing (15.8%)	1.91	2.02	2.09	1.98	2.00	2.12
V Farm, Forest, Fishing Occupations (2.3%)	2.63	2.61	2.71	2.61	2.77	2.87
Non categorized (66.0%)	1.97	1.93	1.83	1.73	1.73	1.84

Source: Calculated from a 1% Sample of the German 1970 Census. Classes had to be defined by a blend of branch, school education, income level and status (worker, salaried employee, civil servant, self-employed) data in order to obtain data comparable to the classifications in the Anglosaxon data. Since to some of questions involved answering was optional, the proportion of non categorized cases is high.

Table 2
Average size of completed families by occupational class and year of marriage, Great Britain, 1946

Occupational class	Year of marriage 1890-99	1900-09	1910-14	1915-19	1920-24
I. Professions	2.30	2.33	2.07	1.85	1.75
II. Employers	3.23	2.64	2.27	1.97	1.84
III. Own Account	3.70	2.96	2.42	2.11	1.95
IV. Salaried Employees	3.04	2.37	2.03	1.80	1.65
V. Nonmanual Wage Earners	3.53	2.89	2.44	2.17	1.97
VI. Manual Wage Earners	4.85	3.96	3.35	2.92	2.70
VII. Farmers and Farm Mana-gers	4.30	3.50	2.88	2.55	2.31
VIII. Agricultural Workers	4.71	3.88	3.22	2.79	2.71
IX. Laborers	5.11	4.45	4.01	3.56	3.35
TOTAL	4.34	3.53	2.98	2.61	2.42

Source: D. V. Class, E. Grebenik (1954, Table 4.1)

Table 2 (cont.)
Average size of completed families by occupational class, Great Britain, 1971, by year of birth and age of wife, and by occupational class of husband (in recent Censuses a different classification of occupation was used):

Occupational Class	**Year of birth (age in years)** 1911-16 (55-59)	1916-1921 (50-54)	1921-26 (45-49)	1926-31 (40-44)
I. Professional occupations (eg. physicians, lawyers)	1.81	1.89	2.02	2.21
II. Managerial and lower professional occupations (eg. sales manager, teachers)	1.76	1.86	1.96	2.12
IIIN. Non-manual skilled occupations (eg. clerks, shop assistants)	1.64	1.72	1.82	1.99
IIIM. Manual skilled occupations (eg. bricklayers, underground coal miners)	1.96	2.03	2.13	2.32
IV. Partly skilled occupations (eg. bus conductors, postmen)	2.01	2.07	2.17	2.38
VI. Unskilled occupations (eg. porters, ticket collectors, general laborers)	2.21	2.27	2.43	2.67
Non-manual	1.73	1.82	1.93	2.10
Manual	2.01	2.07	2.17	2.36

Source: Fertility Report from the 1971 Census, HMSO 1983, Table 9.8

Table 3
Numbers of children ever borne per 1000 native white once married women of completed fertility by occupational class. Rates standardized for duration of marriage. USA

Age in years in 1910	**70-74**	**65-69**	**60-64**	**55-59**	**50-54**	**45-49**
Year of Birth	**1836 -40**	**1841 -45**	**1846 -50**	**1851 -55**	**1856 -60**	**1861 -65**
Major Occupation Group						
I. Professionals, Semi-professionals	4,714	4,770	4,027	3,926	3,635	3,335
II. Proprietors, Managers, and Officials	4,547	4,290	4,139	4,061	3,900	3,605
III. Clerical, Sales, Kindred Workers	4,393	4,146	3,966	3,883	3,558	3,430
IV. Service Workers	-----	4,583	4,574	4,647	4,451	4,052
V. Craftsmen, Fore-men and Kindred Workers	4,844	4,716	4,651	4,584	4,405	4.283
VI. Operatives and Kindred Workers	4,837	4,661	4,662	4,877	4,553	4,556
VII. Laborers except Farm and Mine	5,643	5,374	5,010	5,323	5,114	4,866
VIII. Farmers and Farm Managers	5,517	5,738	5,639	5,775	5,586	5,450
IX. Farm Laborers, Foremen	5,557	5,590	5,513	5,308	4,970	5,102
Total Gainfully Employed	5,206	5,197	5,022	5,059	47941	4,579

Table 3
Numbers of children ever borne per 1000 native white once married women of completed fertility by occupational class of husband. Rates standardized for duration of marriage. USA

Age in years in 1910	**70-74**	**65-69**	**60-64**	**55-59**	**50-54**	**45-49**
Year of Birth	**1836 -40**	**1841 -45**	**1846 -50**	**1851 -55**	**1856 -60**	**1861 -65**
Major Occupation Group						
I. Professionals, Semi-professionals	4,714	4,770	4,027	3,926	3,635	3,335
II. Proprietors, Managers, and Officials	4,547	4,290	4,139	4,061	3,900	3,605
III. Clerical, Sales, Kindred Workers	4,393	4,146	3,966	3,883	3,558	3,430
IV. Service Workers	-----	4,583	4,574	4,647	4,451	4,052
V. Craftsmen, Fore-men and Kindred Workers	4,844	4,716	4,651	4,584	4,405	4.283
VI. Operatives and Kindred Workers	4,837	4,661	4,662	4,877	4,553	4,556
VII. Laborers except Farm and Mine	5,643	5,374	5,010	5,323	5,114	4,866
VIII. Farmers and Farm Managers	5,517	5,738	5,639	5,775	5,586	5,450
IX. Farm Laborers, Foremen	5,557	5,590	5,513	5,308	4,970	5,102
Total Gainfully Employed	5,206	5,197	5,022	5,059	47941	4,579

Table 3 (cont.)

Age in years in 1940	70-74	65-69	60-64	55-59	50-54	45-49	40-44
Year of Birth	1866 -70	1871 -75	1876 -80	1881 -85	1886 -90	1891 -95	1896 -1900
Major Occupation Group							
I. Professionals, Semi-professionals	3,108	2,778	2,638	2,247	2,356	2,253	2.138
II. Proprietors, Managers, and Officials	3,402	2,976	2,719	2,623	2,441	2,374	2.224
III. Clerical, Sales, Kindred Workers	3,110	2,766	2,407	2,385	2,279	2,256	2.127
IV. Service Workers	3,840	3,152	3.025	2,958	2.877	2.782	2.597
V. Craftsmen, Foremen and Kindred Workers	3,943	3,347	2,909	2,981	2,877	2.830	2.642
VI. Operatives and Kindred Workers	4,315	3,774	3.291	3,149	3,121	2,983	2.893
VII. Laborers except Farm and Mine	4.637	4,124	3.567	3,407	3,598	3,496	3.248
VIII. Farmers and Farm Managers	5,250	4,606	4,176	4,116	4,035	3,946	3.732
IX. Farm Laborers, Foremen	5,056	4,484	3,869	3,971	3,911	3,960	4.002
Total Gainfully Employed	4,324	3,808	3,328	3,214	3.099	2,989	2.793

Source: U.S. Bureau of the Census, (1943-47)

Table 3 (cont.)

Age in years in 1950/60/70	45-49	40-44	45-49*	40-44*	35-44**
Year of Birth	1901 -05	1906 -10	1911* -16	1916* -20	1925** -34
Major Occupation Group					
I.Professional, technical, and kind. workers	1.751	1.812	2.002	2.311	2.884
II.Managers, officials and propr's excl. farming	1.978	1.942	2.074	2.336	2.941
III.Clerical, and kind. workers	1.928	1.853	1.971	2.214	2.854
IV.Service workers incl. priv. household	2.416	2.164	2.291	2.426	3.024
Sales worker +	-	-	1.929	2.244	2.888
V.Craftsmen, foremen, and kind. wokers	2.480	2.399	2.389	2.548	3.118
VI.Operatives and kind. workers	2.753	2.612	2.539	2.690	3.221
VII.Laborers, except farming and mine	3.356	3.162	2.933	2.968	3.384
VIII.Farmers, farm managers	3.510	3.344	3.060	3.166	3.565
IX.Farm laboreres and foremen	4.222	3.980	4.146	4.017	4.260
All other +	2.774	2.692	2.145	2.312	-
Total Gainfully Employed	2.525	2.410	2.353	2.534	3.065

+ categories not used in previous censuses Source: U.S. Bureau of the Census (1955,1964*,1973**)

Table 3 (cont.)

Age in years in 1980	**35-44**
Year of birth	**1935-45**
Major Occupation Group	
I. Managerial and Professional Speciality Occupations	2.464
II. Technical, Sales, and Administrative Support Occupations	2.548
III. Service Occupations	2.848
IV. Farming, Forestry and Fishing Occupations	3.330
V. Precision Production, Craft and Repair Occupations	2.871
VI. Operators, Fabricators and Laborers	3.025
VII. Handlers, Equipment Cleaners, Helpers and Laborers	3.136
Total Gainfully Employed	2.736

Source: U.S. Bureau of the Census (1984). In the 1980 census a new classification of occupation groups was used.

by eminent experts on the subject, only 6 raised doubts on the empirical validity of the inverse relationship between status and reproductive success in modern societies, which Vining had presented as the general result of the research in this field. This strong numerical support for the elite underreproduction hypothesis seems to be representative for many demographers' perception of the issue (for example in Davis et al. 1986).

A related subject which also has found intense attention for decades is the relation between measured intelligence (IQ) and fecundity. It is common knowledge, that measured intelligence (IQ) displays positive correlations with educational level and socioeconomic status. Many studies from the 1920s to the present (surveys to be found in Anastasi (1956) and in Retherford and Sewell (1988)) seem to demonstrate an inverse relation between fecundity and measured intelligence - for women even more inverse than for men - in addition to the ubiquitous inverse relations with educational level (which for developed countries cannot be explained any more as an effect of demographic transition still in progress) and socioeconomic status. Herrnstein (1989) in his widely quoted article on "IQ and the falling birth rate" - which found the distinction to be the sole issue of a 4 column article in NEWSWEEK (Cowle 1989) titled "Are the best and brightest making too few babies?" - states it as common knowledge that there is a "redistribution of childbearing towards lower social strata" in industrial societies.

The common interest of authors in both fields focusses on the theoretical question how these inverse correlations can be made compatible with the very essence of modern evolutionary theory. In addition, investigators claimed dysgenic population effects form this inverse relationship, and even tried to estimate the resulting IQ selection differential, the IQ population average change over one generation, which Retherford and Sewell (1988) for their large Wisconsin sample calculated to be eight-tenths of an IQ point decline in a generation. Accordingly, they found the top IQ decile to be the least fit in Darwinian terms, with a relative fitness of .788 for women and .858 for men measured against the most fecund decile (which for women was the second lowest, for men the fourth lowest decile).

Membership in a high status group and especially an elite position is not only in cultural, but also in biological terms very attractive: on the average you can enjoy a healthier and longer life. Infant mortality is lower among elites. A high income provides the means of raising and educating more children than the average, a high position gives more opportunities for protection and placement of offspring. All these advantages are attractive not only for the observer: one of the characteristic features in particular of modern societies is the lifelong energy with which so many people compete for power, possessions and prestige. Many of the physical and psychic properties, which, like health, vigor, attractiveness and risk-taking, promote professional success, also come along with an enhanced biological potential for reproductive success. Thus, it is understandable that many of the quoted authors see the whole Darwinian paradigm being challenged, if it can be demonstrated that, as a regular phenomenon in modern societies, people in highstatus groups do not transform their above-average access to scarce resources into an above-average reproductive success. One may ask, why the potentially fittest are not the actual fittest?

1.2. Methodological Problems

The quoted studies, however, suffer from serious deficiencies, which make it difficult to justify the far reaching conclusions many authors drew from them. Six such deficiencies can be listed:

1.2.1. **Time series**: The data basis for all these elite studies is surprisingly small, given the easy access to elite biographical dictionaries of the kind used. In most cases only cross-sectional, but no longitudinal analyses have been performed. For total populations, as well as for broader defined occupation/status classes there are time series available with census data over 100 birth years (Wrong 1980, or tables 1 to 3). Proponents of the elite underreproduction hypothesis contend that the reported positive relationship between elite status and reproduction was only a transitory, shortlived phenomenon of the relative short period of birth cohorts 1915-1935 - the parents of the baby boom. Opponents of the elite underreproduction hypothesis, on the other hand, interpret the inverse relationship reported for the cohorts borne before WW I as a transitory phenomenon reflecting the demographic transition from a high fecundity, high mortality society to a low fecundity, low mortality society, which simply may have taken place in elites 1-2 generations earlier than in the general population. Clearly, long time series from the time of demographic transition on would have to be taken into account.

1.2.2. **Fecundity differentials within and between status groups**: The borderlines between status groups, permeable as they may be in modern societies, also mark borderlines betwen marriage markets. Evolutionary competition is always competition with neighbours in space, time and social proximity. Evolutionary theory would require not only that the top percentiles of the top status groups in society have a reproductive performance above the national average, but also above the average of the marriage market they belong to.
Given the attention the inverse correlation between status groups and fecundity in industrialized societies has received, surprisingly little research has been done on fecundity differentials within occupation/status groups. Haggod (1948) studied the effects of farm size on completed family size of farmers in the USA. In the nation as a whole, findings were inconclusive. In urbanized states like Ohio and New York a positive relation existed, in the South the relation was negative. Wrong (1980) cites several studies, mostly from the twenties, which demonstrated a positive relation between income and number of children for the alumni of several American universities. XXXXX (1991a) has investigated the professional and reproductive biographies of a class of United States Military Academy graduates, and found a positive correlation between final rank and number of children.
Indirect evidence that such a positive correlation may exist at least in the highest status groups can be found in the reverse J-form of the relation between income and number of children - for the largest part of society an inverse, but for the few top income percentiles a positive correlation between income and number of children (often not visible in the broad income

categories of usual census data) - which is reported for many modern societies (Wrong 1980, 275ff.). The reverse J-form would be consistent with the notion of an inverse relation between income/status groups and average fecundity, but a positive relation between income and fecundity within income/status groups. Freedman (1963) found such a pattern for respondents in a random sample of the US total population who practised family planning.

1.2.3. **Social differentials in mortality:** A child with a greater chance of reaching reproductive age has a greater reproductive value. Mortality differentials for infants, children, adolescents - which are all positive for the elites - have to be taken into account. The need for this becomes even more pressing the farther back into the past longitudinal fecundity data shall be compared.

1.2.4. **Fecundity Parameters**: In the general design of the quoted studies own number of children of all currently or all ever married male members of the elite is compared with completed fecundity rates of all currently or all ever married females of the general population. Female elite members, being a rare species anyway, usually are disregarded. Because of a different age composition and different age specific marriage rates of the two sexes usually cohort specific completed fecundity rates of females are not identical with those of males. Migration in reproductive years may not play a significant role, but fecundity related mortality differentials may cause average number of own children to differ from the CFR of the same cohort. In the quoted studies, there is no discussion of this point.

1.2.5. **Sex differentials in reproduction**: Furthermore, there may be sex differentials in fecundity within status groups. If females borne into a certain status group have a fecundity below the one of males, concentrating on the number of children borne to males alone may lead to overestimating the reproductive success of males, in contrast to status groups where there is no such bias.
Female members of the elite who frequently have a member of the elite as father seem to have a fecundity far below the one of male members (Kiser and Schacter 1949; Mackey and Coney 1987; XXXXX and YYYYY 1991). Maybe the daughters of elite members in general may not have the same number of children as the sons, and consequently the reproductive success of elite families may be overstated by the number of children which their male members have. Such a sex differential could be well understood from population theory. In all sexually reproducing species males display a higher variance of fecundity than females: in human societies there are always more childless men than childless women and more men with many children than women with many children; this differential variance comes along with rank differences (for references see Daly and Wilson 1983, 323): high status males have more offspring than high status females, while low status males have fewer offspring than low status females. The obvious consequence is that in high status groups sons should have a higher reproductive potential, in low status groups daughters. If, furthermore, there is a positive relationship between an individuals's rank, (which means: differential access to precious resources), and the offspring's rank, the Trivers-Willard (1973; Sieff 1990 for a

review of recent literature) hypothesis predicts that in high status groups parents should invest more in sons, in low status groups more in daughters.
In a brilliant study Boone (1986) demonstrated this for the closed marriage market of the medieval Portuguese nobility.

1.2.6. **Differential fecundity and differential reproduction**: Evolutionary competition is about reproduction differentials. In the elite studies quoted above without exception differential cumulative fecundity rates or differential numbers of children ever borne are used as measures of differential reproductive success. Stochastic models of evolution show how problematic this equation is, especially in populations with little or zero growth.
The ultimate measurement for reproductive success is the probability of one's family lineage of not becoming extinct in the future (Weigel and Blurton-Jones 1983). This measure is well defined, since it converges after a few generations. Having on the average more children than the competition may be just one mechanism of achieving this goal. An even more effective mechanism may be reducing the variance of fecundity, in particular the frequency of childlessness, within the family lineage. All other fecundity parameters being equal, this can considerably increase longterm reproductive success, especially in zero growth populations (Ellison 1983, XXXXX 1991a). The effect becomes even stronger, if there is an effective ceiling on the maximum number of offspring a couple can produce.

2. Method

2.1. **Purpose of the study**: The study presented here focusses on the most basic aspect of the whole issue: whether the elites in modern societies reproduce above, below or just on the average of the total population as well as of the top occupation/status groups. The latter will be regarded as proper marriage market of the elites, where they compete against each other and against all other group members for reproduction chances. Evolutionary theory would predict that not only the elites, but the top occupation/status group as a whole will reproduce above the average of the total population. This question, however, will not be an issue of the study (save a few considerations in 4.).

Only in a limited scope the study will deal with explanations of eventual differentials. Clarifying for what explanations can mean in this context, is the distinction between ultimate and proximate explanations.
Ultimate explanations refer to the evolutionary function of an observed behavior: If a positive reproductive differential for elites can be demonstrated, their better access to scarce resources will be regarded as the ultimate explanation for that differential. In all species on this planet observed so far, individuals compete for scarce resources, because above average access to resources provides above average reproduction. Since humans are just a recently evolved species, this explanation of a positive reproduction differential of elites, if it can be demonstrated, will be considered sufficient on the level of ultimate explanations. Should it be found, however, in all, or in some of the analyzed societies, that elites reproduce below the

average of their societies, additional explanations would be required. It could be argued that the fecundity parameters which were used are wrong or incomplete indicators of reproductive success. Or we could argue that elite members and those who desire to become ones are maladapted because they compete for resources which in industrialized environments do not pay off in positive reproductive differentials any more (Boyden 1987). Or it could be speculated that modern societies as a whole are not subject any more to the selection principles which have shaped the previous evolution of the human species.
A completely different type of explanations would refer to the proximate causes of any reproduction differential: the immediate mechanisms by which differential access to resources actually is translated into differential reproduction. Many mechanisms would have to be considered: transfer payments from parents to young couples, pronatalist values, better medical care and therefore fewer wasted pregnancies, or more effficient direct support networks in families of the elite, and so on, in the case of positive differentials; later marriage, higher divorce rates, more emotional investment per child, alternative pleasures in life, and so on, in the case of negative differentials. The two types of explanation are complementary: the explanation of the ultimate causes is incomplete, as long as it is not shown how the observed behavior actually is produced, but any proximate explanation remains meaningless until the evolutionary function of the observed behavior is clarified. Given the purpose of this study, proximate explanations of any observed reproduction differential are beyond its scope. Explanations of the relative size of eventual differentials - possibly an indicator of the intensity of the evolutionary competition involved - also cannot be expected here. Furthermore, as long as there is no consensus about the most basic facts of the issue, the differential reproduction of elites, it makes little sense to speculate about its possible social and political consequences.

The study has been designed in order to avoid the deficiencies of previous studies, as mentioned above.

1. **Time series**: The reproductive success of random samples of male members of the national elites of Germany (n=1757, birth cohorts 1820-1939, lowest number per 10 year cohort: 114), Great Britain (n=1473, birth cohorts 1810-1939, lowest number per 10 year cohort: 96), Japan (n=1101, birth cohorts 1830-1939, lowest number per 10 year cohort: 99) and of the USA (n=1014, birth cohorts 1860-1939, lowest number per 10 year cohort: 107) was compared with the reproductive success of the general population of these countries. These countries have been chosen as four major industrialized and urbanized countries of the world. France, Italy and the Soviet Union did not qualify because of the poor quality of available sources.
Thus, time series from early demographic transition on were made available. One of the nations analyzed is non European, two of them were victorious in the two world wars, while the other two were defeated at least in one. The four countries' history of institutions, labor markets and the economy is quite different. Thus, common demographic features cannot easily be regarded as non-generalizable features of a very peculiar type of society.
2. **Fecundity differentials within and between status groups**: Fecundity differentials were analyzed not only between elite and general population, but also between elite and the top

occupation group (professions and managerial positions) in census data, where available, in order to compare fecundity differentials also within the marriage market to which most elite members belong.

3. **Social differentials in mortality:** Class differentials in infant mortality together with cohort life tables have been used in order to calculate the differential reproductive value of a child borne into an elite family in comparison to the average population.

4. **Fecundity Parameters**: Differences between own number of children and cumulative fecundity rates have been given careful consideration. In addition, by using a dataset of 359 pairs of fathers and sons listed in the British Who-is-Who at subsequent times, sex and class differences in age at marriage and mean generation length have been taken into account.

5. **Sex differentials in reproduction**: It has been tried to assess eventual differences in reproductive performance between male and female offspring of elite members, by comparing sex differences in reproductive performance in the top educational level census classes, and other status group dimensions from original data.

6. **Differential fecundity and differential reproduction**: Conclusions from observed fecundity differentials to longterm reproduction differentials will be discussed.

The study concentrates on male elite members' fecundity, since most elite positions are occupied by males, since the whole debate has been on male elite members only, and since the - still very small - population of female elite members in the sources has undergone considerable changes in size and composition, which call for separate analysis.

2.2. **Time series**:

2.2.1. **Sources**: Many of the elite fecundity studies in modern societies use elite dictionaries of the Who-is-Who type for sampling as well as for data collection. The earliest of these dictionaries was published in the middle of the last century, (first Who-is-Who in England published in 1847); from 1890 on they show the same composition as today (Who-is-Who in Great Britain 1892, Who-is-Who in America 1897, Jinji Koshinroku Sha in Japan 1906, Wer ist's in Germany 1905). At present, they include about .01 - .05 percent of the total population. Admission in these sources is based on either of two factors: a) the position of responsibility held, or b) exceptional achievements in the course of any noteworthy career (see "Standards of Admission" in the Who-is-Who in America 1990). Examples for the first type are high positions in Government, Administration, Judiciary, Business, Associations, Military, Religious Communities, Science, Media; for example, members of the national parliament, senior military officers from the rank of major-general upwards, editors of newspapers with a certain minimum circulation, ranking members of the National Medical Association, or the National Bar Association. The second type is represented by well known artists, architects, authors, scientists, or leading activists in civil movements. Admissions of the first type are far more frequent. Some data about the listed persons may have been previously known to the editors, but the bulk of the data is obtained - usually by a mailed questionnaire - from the listed persons themselves. Readiness to reveal personal data about marriages, children etc. varies visibly.

Considering all practical problems in operationalizing elite membership, the selection is not too badly taken. Celebrities which one would rather not count as elite members (Olympic games winners, movie starletts) are not very frequent. Some professions (lawyers and architects), self-employed entrepreneurs, and owners-investors may be underrepresented. It is unknown which proportion of all those who in principle would qualify are actually selected. Any resulting bias in sampling, however, does not matter for the purpose of this study as long as it is unlikely that the bias correlates with reproductive success. Elite segments are differently represented in various countries (in Germany many listings are university professors, in Indonesia senior military officers, in Japan businessmen). Artists and writers in all four nations (between 1% and 5% of the samples) have a significantly lower fecundity than all other professions. Versellier (1989) found similar differentials in France. Artists and writers sometimes may exercise great influence on public opinion, but despite all the fame they may enjoy they lack the very essence of an elite position, something which all the others: judges, generals, bishops, chief surgeons, university presidents, CEOs, publishers etc. have: immediate power over other people. Therefore, artists and writers were excluded from analysis. In addition, there is a problem with differential age at entrance: Scientists or politicians will qualify for admission earlier in life than military officers, judges, or union leaders, resulting in different staying time in the sources.

Sampling bias by profession can be dealt with by controlling for profession specific fecundity differentials (see below). Sampling bias by age at entrance can be dealt with by drawing individuals only between age 49 and older, which is justified if there is no correlation between fecundity and longevity beyond age 49 which indeed in none of the four datasets could be detected. Individuals who die before age 49, may have a lower cumulative fecundity, and also have a lower chance of being listed in the source at all; such indivduals, on the other hand, do not contribute to the family completed category in census data either. Since elites at all ages have a below average mortality, except maybe among young military officers in wartime (Lancaster 1990,316 with further references), any bias from excluding younger individuals could be expected to decrease the measured fecundity differentials of elites, and therefore would not be harmful for the purpose of the study.

2.2.2. **Variables**: The following data were documented for each individual in the samples:
- date of birth, date of death. A person drawn was followed through subsequent volumes until exact date of death could be determined. Otherwise the last year of listing was documented.
- Profession/activities was documented in one of the following categories: 1) Arts, Literature, Music; 2) Business, managers; 3) Clergy; 4) Media; 5) Academic Institution: Humanities, Social Sciences; 6) Academic Instituition: Natural Sciences; 7) Politician; 8) Medicine; 9) Legal profession; 10) Architects, self employed engineers, and other professions (few cases); 11) Military; 12) Public Administration; 13) Inherited wealth, landowner
- titled or not (in Japan: Kazoku (nobility) Shizoku (gentry) Heimin (commoner))
- university/college graduation
- number of daughters and sons, adopted daughters and sons, deceased children.

Usually not much more information can be obtained from the listings. Religion was not documented because many subjects did not report religious affiliation. With the exception of Roman Catholic priests only very few subjects were recognizable as unmarried, once artists and writers were excluded. Number of marriages, however, was not documented because there seemed to be a underreporting of previous marriages, as a check of some listings showed, which were known as divorcees or widowers.

2.2.3. **Data completeness and quality**: A serious problem is underreporting. If the addressees do not respond at all (rarely), only name, profession/activities, and office address are listed in the dictionary. As a general rule, listings with only these data were not included in the sample.

The sources available for the four countries markedly differ in completeness. In the Japanese sources, apparently there was only a small amount of underreporting, and the data could be used as they came in. In the three Western nations, however, the sources are incomplete, and the raw data had to be corrected. Readiness to disclose details of marital and reproductive biography vary considerably, and so do the motives for withholding information about one's own family. A person may mention his famous father, but may not tell about his wife. A person may leave the column "children" empty, because there are no children, because his children have died, or because he is afraid of kidnapping or blackmailing. Making inferences from information given to information missing often is impossible. Therefore, rather than estimating the true childlessness rates from the rates of nonresponders, a different approach was chosen.

In order to know about the fecundity of nonresponders in biographical dictionaries of this kind, a mailed survey was conducted among 400 men listed in the German Wer-ist-Wer volume 1989, with 200 men having reported children, 200 not. These men were asked about marriages and children. Return rate in both subgroups was about 90%, with the following results:
1) If a person had reported children at all, this number was correct. In rare instances, the number of sons and daughters were confounded. Deceased children always had been mentioned, but often not as deceased.
2) The distribution of number of children among those who had children, but had not reported them, was about the same as the distribution among those who had reported children.
3) Explicit statements of childlessness are very rare in the Wer-ist-Wer. Thus, practically all childless individuals had to be found in the group of nonresponders. The number of never-married men in the German elite (with exception of the easy-to-recognize catholic clergymen) is very small, while the proportion of childless ever married men at present is about 10 %.

Estimations of the proportion of childlessness, in the elite as well as in the general population are notoriously difficult. Childlessness ratios in the German 1970 census were: cohort 1870-79 17%, 1880-89 18%, 1900-1909 21%, 1910-19 15%, 1920-29 14%, 1930-39 12% (calculated by the author) with the top occupation/status class being at 80-90% of the total population. For the USA there are consistent and reliable childnessless rates for ever married women with reproductive life span completed, from census material (Festy 1979, Glass et al. 1954): birth cohorts 1836-45 8.0%, 1846-55 8.4%, 1856-65 9.3%, 1866-75 14.4%, 1876-85 15.9%, 1886-95 15.3%, 1896-05 15.4%, 1906-15 18.6%, 1916-25 11.4%, 1926-35 8.6%, 1930-39 7.0%, 1936-45 6.6%, 1940-49 9.4%. The increase for the cohorts 1866-99 may have been due to the spread of veneral diseases with their negative consequences for fertility which gave rise to strict disease control laws in most industrial countries. A data set of 1179 British industrialists from cohorts 1790-1929 (Dictionary of Business Biography 1984-86) with 2-8 page biographies per individual) showed a mean childlessness of 11.5%, again with the maximum in the cohorts 1866-1899. Sly and Ricards who also had mailed questionnaires to individuals with incomplete data reports, found 7.5% childless ever married men in their US elite sample.

Therefore, rather than trying to estimate true childlessness rates from the biographical material in the elite dictionaries, it will be assumed that:
1) All male elite persons listed, which are not explicitly recognizable as never married, are considered to be ever married (Most men are explicitly listed as married).
2) Childlessness among married male elite members is estimated to have been 10% until the 1860-69 cohort, and from the 1920-29 cohort on, and 15% for the cohorts between. The mean number of children listed by persons with children will be weighted accordingly. Given that childlessness among ever married females in the top occupation/status class in census data was 80-90% of the population average, these estimates are probably too high, which, however, is not undesirable for the purpose of this study.

Since only very few children are listed as deceased, since it is known from the survey among German non-responders that many deceased children are not listed as such in the sources, and since date of death would be unknown anyway, mortality among respondents' children could not be estimated from the data and another approach had to be used (see 2.4.)

2.3. **Fecundity differentials within status groups**: Fecundity comparisons within the broader marriage market to which most elite members belong (top occupation/status class) are easy for the two anglosaxon countries (see tables 2 and 3), for Germany possible only from the 1900s on, but difficult for Japan, because there are no prewar census data on class differentials in fecundity. There are some data available from surveys (Matsumoto 1939), which are, however, are of little value for this purpose.

2.4. **Children mortality differentials:** Most markedly in the last century, infant and adolescent mortality was lower in the elites than in the general population. This was not always the case: in premodern societies with their poor hygenic conditions, mortality and especially infant mortality differentials were more geographic rather than social (Johansson 1986; Mosk and Johansson 1986 with additional references). Since there are no specific life tables for the elites, the following method was applied for estimating the differential mortality and, consequently, the differential reproductive value of elite children:

1. Differential infant mortality in the elite of cohort C (q_1 or q_2) was retrieved from specific sources or estimated (see below);
2. From the generation life tables of that particular society a cohort C' was selected, which for the general population displayed the same infant mortality as the elite of cohort C. Analysis of the data set of Father - Son pairs in the British Who-is-Who displayed 42 years mean length of generation for the 1820-29 cohort, coming down gradually to 35 years for the 1930-39. Sons of elite members, however, marry later than daughters. Therefore mean age at reproduction uniformely was set at 30 years. Probability $p_{0,30}$ is the probability of surviving to mean age at reproduction for the general population of birth cohort C. Probability $p'_{0,30}$ of surviving to mean age at reproduction in the lifetable of cohort C' was taken as the probability of an elite family's child, born in cohort C to live through that age.
3) The quotient $p'_{0,30}/p_{0,30}$ was interpreted as the relative chance of an elite child of cohort C, in comparison to an average child of cohort C, to reach mean age of reproduction.
4) For every individual case in the data set, number of children was multiplied with this quotient $p'_{0,30}/p_{0,30}$ of the cohort 35-42 years later than his own birth cohort.

The reasoning behind it was that the survival patterns in this particular society are the same in all strata of society, only with the exception that the elite is more advanced: it displays an age specific survival pattern in cohort C which the general population does not achieve before cohort C'. Social mortality differentials in the second half of this century in the societies analyzed here have become very small anyway. This approach seemed to be better than using model life tables, since for three countries studied here cohort specific life tables are available. For Japan there are no class differentials in mortality rates available anyway, and an alternative approach had to be taken. Details of computation are given for each country below.

2.5. Methods of comparisons

In the published studies number of children ever borne to male elite members was compared with completed fecundity rates of females of the same birth cohorts in the general population. This approach is not without problems. If number of children ever born (CEB) of individuals of one cohort surviving to age 50 is compared to the CFR of this cohort, then, provided migration is nonexistent:

- if mortality and fecundity do not correlate $CEB = CFR$

- if there is a hypomortality of hyperfecund individuals $CEB > CFR$

- if there is a hypermortality of hyperfecund individuals $CEB < CFR$.

Hypofecundity partly is the result of fertility disorders (inborn and acquired). Some of those diseases will be associated with hypermortality, therefore in general for male individuals

$CFR_{♂} < CEB_{♂}$. Furthermore, since mortality (especially during the reproductive years) is lower among male elite members (E) than among the general population (G):

$$CEB_{♂E} / CFR_{♂E} < CEB_{♂G} / CFR_{♂G} \qquad (1)$$

Therefore

$$CFR_{♂E} / CFR_{♂G} > CEB_{♂E} / CEB_{♂G} > 1 \qquad (2)$$

Hypermortality of hypofecund females should be lower than of hypofecund males, among other things because pregnancy and childbearing present health risks which are nonexistent for males. It can be made plausible to assume that in females specific mortality risks associated with hyperfecundity and hypofecundity in developed countries may roughly neutralize each other, such that for females $CEB_{♀} = CFR_{♀}$. Since in modern societies the sex ratio does not decrease below unity before age 40, when the most fecund years are already over, usually $CFR_{♂} < CFR_{♀}$. Given that about 5-10% of all males may not have the normal fecundity of their age (estimated from the 12-18% of permanently childless couples), and given that male infecundity partly may be associated with an above average mortality, it can be assumed that the effects of sex ratio on sex differentials in the CFR, and the mortality selection against hypofecund males also roughly neutralize each other, such that

$$CFR_{♀} \approx CEB_{♂} \qquad (3)$$

which means, that if it can be shown, that

$$CEB_{♂E} > CFR_{♀G} \text{ or } CEB_{♂E} > CEB_{♀G} \qquad (4)$$

then (2) is proven. So far, the method of comparison used in previous studies is admissible for developed countries.

Another question is, which cohorts of females of the general population and of male elite members should be compared. Relative reproductive success must be measured by comparing same cohorts of offspring, not of parent(s).

In the general population mean age at maternity in the three Western societies rather uniformely was about 31 years in the cohorts 1810-1839, and then gradually decreased to about 26 years in the cohorts 1930-49, this reduction being more the result of the reduction of number of children rather than a decrease in age at marriage. Figures from the last century were not available for Japan. It is assumed, that they are in the same range as in the the three Western societies, as they actually are from 1920 on.

In a random sample of 343 father-son pairs from the Who-was-Who and the Who-is-Who in Great Britain, fathers being born 1810 and 1919, sons being born between 1840 and 1949, mean age of paternity in this elite group was estimated. Not too surprising, 150 of these father-son pairs consisted of owners of an heritable nobility title (often bolstered by a large fortune). Interesting is that these 150 pairs did not differ in mean age difference between father and son age to the other 193 pairs: The difference was about 38 years throughout the first two thirds of the last century, and then decreased down to 32 years for the latest cohorts.

A heritable title in most cases goes to the oldest son. Various studies have shown, that for a male being a first son greatly enhances his chances to reach an elite position (for example becoming a general in the US military - XXXXX 1991a). Thus, it will be assumed that the majority of sons of the non-titled subsample also are first born sons.

Taking average number of elite children per cohort into consideration, these findings allow to set the mean age of paternity among elite members at 42 for the elite cohorts born in the first half of the last country, seeing it gradually coming down to 35 from the 1910-1919 cohort on.

Since the level and changes of maternity age in the general population of the three Western nations were close together, it is assumed that level and changes of paternity age among elites also were roughly the same. That means that the number of children born to an elite member before 1860-69 will have to be compared to the completed fecundity rates of women of the general population who were 11 years younger, the difference coming down to 9 years for the youngest cohorts. It is assumed that similar conditions have prevailed in Japan, too. Age difference between bride and groom - first marriages - in Japan were 4.2 years in 1920, went down to 2.4 in 1980 (Annual report 1988).

2.6. **Sex differences in reproductive performance of offspring**: This is probably the most difficult methodological problem of the study. Fecundity data for males are very rarely collected in any kind of census type surveys. Obviously, sex differentials in fecundity require sex differentials in nuptality, on which, however, no data are available either. Thus even indirect estimations of male fecundity from census data are difficult. The underreporting in the sources of previous marriages, if these ended in divorce, has already been mentioned. Thus, since there are no data of the kind which would be required for a rigorous argument, only rough estimations are possible. First, since the sex ratio in the reproductive years 20-45 is about even, the average cumulative fecundity of males and females in the total population can be assumed to be equal. Secondly, one can observe that large sex differentials in variance of number of marriages and number of children have been reported exclusively for pre-industrial societies. There are two factors closely connected with these differentials: high mortality in childbed, and land ownership as the major determinant of wealth and status. High childbed mortality means that surviving males from wealthy families had more marriages than surviving females; land ownership, because of economics of scale, at all times tended to be concentrated in one family member per generation, preferably a male. In both dimensions modern societies differ from their predecessors: there was a dramatic decline in childbed mortality; wealth in modern market economies in most cases means capital ownership - here dividing up an heritage is not a threat to the status of a family's next generation (Boone himself raises that point 1986, 868). As a consequence, in modern, industrialized societies the effects of the Trivers-Willard mechanism may be rather weak.

From studies on the fecundity of female members of the elite - who often have an elite member as father - of the USA (Kiser and Schacter 1949; Mackey and Coney 1987) and Germany (XXXX and YYYYY 1991) it is known, that they are more often unmarried, more often childless and, if with children, then with fewer children than male elite members. But female elite members are rare, and certainly do not represent an unbiased sample of the daughters of male elite members in general. Thus the best guess will be based on a comparison between the fecundity differentials between females and males in the top education category in the generation of subjects' offspring. Elites try to provide their daughters as well as their sons the best education available in the context of their time. Given the ubiquitious tendency for hypergamy, we will assume that a very large part of elite daughters will marry men with a top educational background, too. Elite members from the earliest cohorts (1820-29) saw their children coming into college age around 1875-95, when a college or university education even for girls gradually became a realistic option in the upper classes. For two of the four countries an analysis with census data has been performed in order to estimate sex differences in fecundity on different education levels.

From a 10% sample of the 1971 Census of England and Wales, number of children ever borne for women married once, having married before age 45, with duration of marriage 15 years and more, was obtained for academic level of wife and of husband (see table 4a). Level 1 has been defined as "Higher University Degree or other degrees or equivalent or other qualifications higher than GCE (General certificate of education) 'A' level "; level 2 as "GCE 'A' level or equivalent"; level 3 "none of the above" ('A' level is the the most advanced school qualification below college level). These data come from cohorts of females borne between app. 1890 - 1935. From a 1% sample of the 1970 Census of West Germany analogeous figures were calculated (table 4b)

(insert tables 4a and 4b here)

From these figures it cannot be concluded that females on academic level 1 are less fecund than males, once they marry men of equivalent educational background. But there may be differences in nuptality. Essock-Vitale (1984,47) found no sex differences in nuptality nor fecundity in her Forbes 400 sample of the 400 "richest people in America". In XXXXX's (1991) sample of family histories of 437 West Point graduates sisters with a college degree had the same fecundity as their brothers with a college degree. In a dataset containing all members of the reigning dynasties in Germany/Austria borne between 1800 and 1939 (unpublished) no fecundity differences between females and males could be detected. From this incomplete material it may be assumed that there are no significant sex differentials in fecundity among the offspring of male elite members in the three Western societies. For Japan the data situation is even worse, but since sex differences in mortality during reproductive years are about the same, and since nuptality rates are not lower and divorce rates are not

Table 4a.
Number of children ever borne, women married once, married under age 45, duration of marriage 15 and more years, by academic class and academic class of husband (for definition see text). England/Wales: 10% sample of the 1971 census

education husband \ education wife	academic class 1	academic class 2	academic class 3
academic class 1	2.31 n=8679	2.10 n=1336	2.08 n=8711
academic class 2	2.33 n=2639	2.07 n=4992	2.09 n=4392
academic class 3	2.08 n=25203	2.10 n=11355	2.24 n=376858

Table 4b.
Number of children ever borne, ever married women, by academic class and academic class of husband (for definition see text). Germany: 1% sample of the 1970 census

education husband \ education wife	academic class 1	academic class 2	academic class 3
academic class 1	1.88 n=1285	1.64 n=288	1.70 n=430
academic class 2	1.94 n=2409	1.77 n=3499	1.73 n=3533
academic class 3	1.90 n=4917	1.89 n=13205	2.00 n=84658

higher than in Western countries it may also be assumed that there are no significant sex differentials in fecundity among the offspring of male elite members either.

2.7. **Fecundity versus longterm reproductive performance**: Since no data are available on childlessness or on fecundity variation differentials among elite members' offspring, distinguishing between first generation fecundity and longterm reproductive performance can be based only on a rough estimation. A clear choice for the purpose of this study nevertheless may be possible. From XXXXX's (1991b) analyses of reproductive performance over 2 generations in families of West Point graduates and of US noncommissioned officers, as well as in Norwegian microcensus data (unpublished) it can be safely concluded, that in high status groups childlessness als well as fecundity variation is smaller than in the average population. Thus any fecundity differential in one generation between a high status group and the population average always underestimates the differential in longterm reproduction working in favor of the high status group.

2.8. Countries

2.8.1. **Germany**: Sources were the volumes I-X of "Wer-ist's?" (Who-is-it?), the Reichshandbuch der Deutschen Gesellschaft of 1931, and the volumes of Wer-ist-Wer (Who-is-Who) 1955-1989. Germany during the time under observation (births cohorts 1820-1939, active years of these men: 1860-1990) went through several revolutions of the whole political system, including territorial changes and a 40 year long separation. These upheavals left their traces in the sources.
The first source available is the "Wer-ist's?" of 1905. Later volumes were published in intervals of 3-7 years. After the beginning of the Nazi era 1933 only one volume was published in 1935, which was purged of a large part of those people who formed the elite before 1933 ("because of death and for other reasons several thousand biographies had to be deleted" the forword stated cryptically. Among others, Albert Einstein was dropped). In order to make a clearcut break with the past, the first "Wer-ist's?" (this title soon to be changed into "Wer-ist-Wer") published after WW II, in 1947, as a principle did not admit any individual listed in the 1935 volume. Only gradually some of the latter group reemerged in later volumes. The volume 1955 in this sense was the first "normal" volume after the war. The last "normal" volume before WW II was published in 1928. In 1931 a monumental volume "Reichshandbuch der deutschen Gesellschaft" (Reich's Handbook of German society) was published which contained 12000 biographies of elite members of the late Weimar Republic. Quality and completeness of biographical data in this source are superior to the ones in the contemporaneous "Wer-ist's?" volumes. It was used for the birth cohorts 1870-79 and 1880-89. In addition, 100 individuals of these cohorts were selected from the Wer-ist-Wer of 1955. The problem is a vast underreporting of children in the second sample, maybe because many children of these persons died during the war, and were still mourned by their parents. From 1955 to the present the proportion of persons withholding information about family and children is still higher than in the Angloamerican, but also higher than in the prewar German

sources; from about 1/2 of all listings in 1955 down to about 1/4 of subjects today do not provide information on number of children.
Cohort specific life tables from 1871 on have been calculated by Dinkel (1984). There was no all German population statistics before 1871. The earliest elite cohorts documented in this study were born in the 1830s and will have had their children from the late 1850s on. It will be assumed that life tables for the end of 1850 to the end of 1860 were about the same as the 1871 life table.
There are no census data on class differentials in fecundity or mortality, threrefore an alternative approach was taken. Berlin from the beginning of the 19th century always was the largest city, and the largest industrial city in Germany, too. It was the target of an enormous internal migration, swelling up to 4 million at the end of the century. The spacial infant mortality differential between the best district of Berlin and the average of all Berlin is taken as an indicator for the class differential elite/general population. As earliest differential for 1860-69 is obtained 0.61, 1970-79 0.62, 1880-89 0.63, 1890-99 0.64, 1900-09 0.65, 1910-19 0.66, 1920-29 0.67, 1930-39 0.68, 1940-49 0.69, 1950-59 0.70, 1960-69 0.71, 1970-79 0.72. Accordingly, relative value of a child born to an elite member of birth cohorts 1830-39 was 1.39, 1840-49 1.34, 1850-59 1.29, 1860-69 1.25, 1870-79 1.20, 1880-89 1.16, 1890-99 1.12, 1900-1909 1.08, 1910-19 1.04, 1920-29 1.03, and since 1930-39 1.02.
In view of the British example, and of the rich material in Seutemann's (1894) scholarly work, class differentials actually may have been larger than regional ones (unlike those in the USA). However, if Peller's (1943) infant mortality rates for the German High Nobility are used (which unfortunately are given only for very broad time spans: 1800-1850: 9.6%, 1850-1900: 4.1%, 1900-30: 0.8%), only slightly higher differentials in reproductive value of a child would result: from 1.5 for the child borne to an elite member of birth cohort 1830 down to 1.15 for birth cohort 1900.

2.8.2. **Great Britain**: Sources were Who-was-Who volumes I-VIII, a reference work which lists all persons who at the time of their death had been listed in the Who-is-Who, and Who-is-Who volumes 1968, 1978 and 1988. In the birth cohorts of the first half of the this century there was widespread underreporting of marriages and children (but not as frequent as in the American sources). Birth cohorts from 1810-1909 were drawn from the Who-was-Who, cohorts 1910-1939 were drawn from the Who-is-Who.
In general, while underreporting is frequent in early cohorts, it becomes much rarer in the later cohorts. It is assumed that the results of the survey among German non-respondents also apply to British non-respondents; thus, raw data will be corrected according to the principles described in 2.2.2..
Generation life tables 1841, 1846 ... to the present have been calculated by Case et al. 1962, but unfortunately exist only in handwritten form. Class differentials in infant mortality in the broad occupational census classifications have been obtained from Ansell (1874), Bailey and Day (1861) and Humphrey (1887) for 1800-1850, from Haines (1985, 891; 1989, 310) for 1860-1911, from Antonovsky/Bernstein (1977) and Hollingsworth (1981) for 1911-1972. Class differentials in infant mortality in Great Britain were considerably higher than in the USA.

Data slightly differed depending on source, therefore by moving averaging the time series had to be smoothed. Astonishingly, relative class differentials in infant mortality, between the top occupation class and the general population in Great Britain changed only little since 1830 (same conclusion by Antonovsky 1977). They were about .57 in 1830, were as great as .47 in 1921, and are now at about 0.60 - 0.65. Accordingly the relative reproductive value of a child born to an elite member of birth cohorts 1790-99, 1800-1809, 1810-19 was 1.4, 1820-29 1.37, 1830-39 1.36, 1840-49 1.28, 1850-59 1.23, 1860-69 1.2, 1870-79 1.18, 1880-89 1.11, 1890-99 1.11, 1900-1909 1.1, 1910-19 1.09, 1920-29 1.08, 1930-39 1.06, 1940-49 1.05, 1950-59 1.04.

2.8.3. **Japan**: Sources were volumes 3, 6, 10, 14, 21, 24, 31, 34 (corresponding to years of publication 1911, 1921, 1934, 1943, 1961, 1968, 1981, 1987) of Jinji Koshinroku Sha (register of gentlemen), Tokyo. In general, the quality and completeness of relevant information in the source is very good. About 5-20% of listings - depending on cohort - do not give information about children or marriage. However, most of these cases report adopted children, which implies that individuals not reporting children are most likely having no children rather than withholding information on existing children. Missing information about marriages may indicate liaisons with mistresses, but children from these liaisons were always listed, sometimes as own children, sometimes as adopted children.

The listings did not mention deceased wives or children, but indicated for every listed child birth order in each sex - for example: XY (third son). Thus, as long as youngest son and youngest daughter were alive at the time of the listing, number of children ever born can be correctly documented. In order to check which child was youngest son and which child was youngest daughter, listed persons were traced back in earlier volumes of the dictionary.

Because having young mistresses was not uncommon among the elite in earlier days, sexagenarians still had babies. Therefore the age limit was set somewhat higher in the Japanese data set: all persons of age 65-74 were made eligible. By checking in subsequent volumes of Jinji Koshinroku Sha, an attempt was made to narrow down the death year, in order to test whether there was a correlation between longevity and number of children beyond age 65. No such correlation could be demonstrated.

Because some adopted children in fact may be own children, and because some youngest children of either sex may not have been documented, the actual numbers of children may even be slightly higher than documented.

Noteworthy is the high frequency of businessmen and bankers, and the low frequency of authors, artists, media professionals, physicians, lawyers - in comparison to the three Western societies. Some of these professions in comparison may actually be less frequent in Japan.

With regard to infant mortality class differentials and the estimation of the relative reproductive value of children, on the other hand, the data situation for Japan is the least favorable one of all countries under consideration. It was not possible to locate any cohort specific life tables of Japan reaching back to the last century nor any data on class differentials in infant mortality in the last century. According to expert opinion such data probably do not exist.

All income-mortality correlations obtainable use aggregate data on the prefectural level. It seems that mortality differentials until after WW II in Japan were greater between regions than between social classes. Japan had income-mortality relationships which resembled the Western example not before the post WW II era (Hanley 1974; Mosk and Johansson 1986, 433). The largest geographical (prefectural level) differentials in the standardized death rates for males were about 1:1.4 in 1908, with the healthiest prefecture displaying a standardized death rate for males of 90% of the national average (Mosk and Johansson 1986).
Therefore, instead of own estimations which would not be very reliable anyway, two scenarios of class differentials in relative reproductive value of children will be applied: as a high differential scenario the Great Britain differentials, and as a low differential scenario the US differentials will be used. It is assumed that the Japanese differentials were within the boundaries set by these two scenarios.

2.8.4. **USA**: Sources were volumes I-VIII of the American Who-was-Who, and the Who-is-Who 1978 and 1988. Because of underreporting among birth cohorts of the first half of the last century the earliest cohorts documented are of 1860-69. Birth cohorts 1860-1909 were drawn from the Who-was-Who, 1910-1939 from the Who-is-Who 1969, 1979 and 1989. It is assumed that the results of the survey among German non-respondents also apply to American non-respondents; thus, raw data will be corrected according to the principles described in 2.2.2..
Generation life tables from 1871 on have been published by Jacobson (1964). Class differentials in infant mortality in the broad occupational census classifications have been obtained from Haines (1985) and D.S. Smith (1983) for the cohorts before 1900, for cohorts 1900-1966 from Antonovsky/Bernstein (1977). A characteristic of the United States is that class infant mortality differentials until this century have always been smaller than regional differentials (see also Hareven and Vinovskis 1975). The infant mortality differential between the highest occupation/status class and the average population is approximately 0.80 around 1900, and coming down to 0.83 in 1966. Accordingly, the relative reproductive value of a child born to an elite member of birth cohort 1870-79 to 1900 -09 is about 1.10, cohort 1910-19 1.06; 1920-29 1.04, 1930-39 1.03, 1940-49 1.02.

3. **Results**:

The general results can be found for each country in tables 5 - 8 and in figures 1 - 4.

(insert tables 5 - 8 and figures 1 - 4 here)

The tables give the number of children unweighted and weighted according to the relative reproductive value of an elite child in the respective cohort. Since there are no class infant mortality differentials available for Japan, version I weighted with the US differentials and version II weighted with the Great Britian differentials, the lowest and the highest differentials among the three Western nations in the study. The figures depict the weighted number of

Table 5
Country: GERMANY

	CFR of General Population +	No of children Elite	Rel. Value children Elite
1820-29	5.10*	3.57	4.97
1830-29	5.10*	3.49	4.85
1840-29	5.10*	3.20	4.28
1850-59	5.17	3.18	4.10
1856-65	5.02		
1860-69	4.80	2.65	3.31
1866-75	4.47		
1870-79	3.98	2.88	3.45
1876-85	3.41		
1880-89	2.82	2.23	2.58
1886-95	2.37		
1890-99	2.23	2.18	2.44
1896-05	2.08		
1900-09	2.02	2.19	2.36
1906-15	1.96		
1910-19	1.92	2.37	2.46
1916-25	1.95		
1920-29	2.00	2.35	2.42
1926-35	2.16		
1930-39	2.16	2.27	2.32
1936-45	2.07		

+ Festy (1979, 222,301); UN Demographic Yearbook 1949/50; 1954; 1978 HS; Marschalk (1982, 81);
* estimated: a) since there are no cohort specific fertility rates available before 1870-71, the CFR of this cohort was taken as the estimated upper limit of the respective rates. The crude fertility rate in 1840 was about 11% higher than in 1870, but the Mortality Rates even more so; therefore we estimate the CFR before 1871 as certainly not above the one this year - it was probably below it.

Table 6
Country: GREAT BRITAIN

	CFR of General Population +	No of children Elite	Rel. Value children Elite
1810-19	5.09	3.72	5.21
1816-25	5.01		
1820-29	4.97	4.14	5.67
1826-35	5.01		
1830-29	4.90	4.01	5.46
1836-45	4.87		
1840-29	4.76	3.59	4.60
1846-55	4.56		
1850-59	4.26	2.67	3.28
1856-65	3.93		
1860-69	3.63	2.46	2.95
1866-75	3.35		
1870-79	3.07	2.44	2.88
1876-85	2.79		
1880-89	2.51	2.11	2.45
1886-95	2.29		
1890-99	2.13	2.14	2.37
1896-05	1.96		
1900-09	1.81	2.28	2.51
1906-15	1.83		
1910-19	1.91	2.37	2.58
1916-25	2.05		
1920-29	2.19	2.61	2.82
1926-35	2.32		
1930-39	2.39	2.44	2.58
1936-45	2.28		
1940-49		2.48	2.60

+ For cohorts 1790-1826 based on Wrigley and Shofield (1981). CFRs were computed from cohort specific GRRs, using a sex proportion of 104.5, which was documented in 1821 (Wrigley and Shofield 1981, 591); for later cohorts Festy (1979, 126,262)

Table 7
Country: JAPAN

	CFR of General Population +	No of children Elite	Rel. Value children Elite
1810-19			
1816-25			
1820-29			
1826-35			
1830-29	4.00*	3.31	3.64 (4.63)
1836-45			
1840-29	4.00*	4.62	5.08 (6.47)
1846-55			
1850-59	4.00*	5.28	5.81 (7.23)
1856-65			
1860-69	4.00*	4.77	5.25 (5.72)
1866-75			
1870-79	4.30*	3.96	4.36 (4.59)
1876-85	4.37		
1880-89	4.37	3.76	3.98 (4.36)
1886-95	4.39		
1890-99	4.41	3.13	3.26 (3.48)
1896-05	4.38		
1900-09	4.31	2.61	2.68 (2.87)
1906-15	4.02		
1910-19	3.44	1.98	2.01 (2.15)
1916-25	2.99		
1920-29	2.44	1.80	1.84 (1.94)
1926-35	2.27		
1930-39	2.04	2.00	2.04 (2.12)
1936-45	1.97		
1940-49	1.89**		
1946-55	1.75**		

+ Calculated from census data of 1950, 1960, 1970 (number of children ever borne to ever married women; and proportion of never married women per cohort) Department of Statistics (1985, 848), and Institute of Population Problems (1989, 29)
* estimated
** estimated from TFRs of 1975,1980,1985. Statistical Yearbook of Japan (1989)

Table 8
Country: UNITED STATES OF AMERICA

	CFR of General Population white women +	**No of children Elite**	**Rel. Value children Elite**
1810-19			
1820-29			
1826-35			
1830-29			
1836-45			
1840-29			
1846-55			
1850-59			
1856-65	4.06		
1860-69		2.56	2.81
1866-75	3.76		
1870-79	3.53	2.35	2.59
1876-85	3.35		
1880-89	3.16	2.15	2.28
1886-95	2.98		
1890-99	2.74	1.97	2.05
1896-05	2.48		
1900-09	2.30	1.90	1.96
1906-15	2.26		
1910-19	2.42	2.44	2.49
1916-25	2.69		
1920-29	2.94	3.13	3.19
1926-35	3.07		
1930-39	2.97	2.61	2.66
1936-45	2.55		
1940-49	2.41		

+ Festy (1979, 235, 290); The Statistical History of the United States of America, US Bureau of the Census (1982, 53)

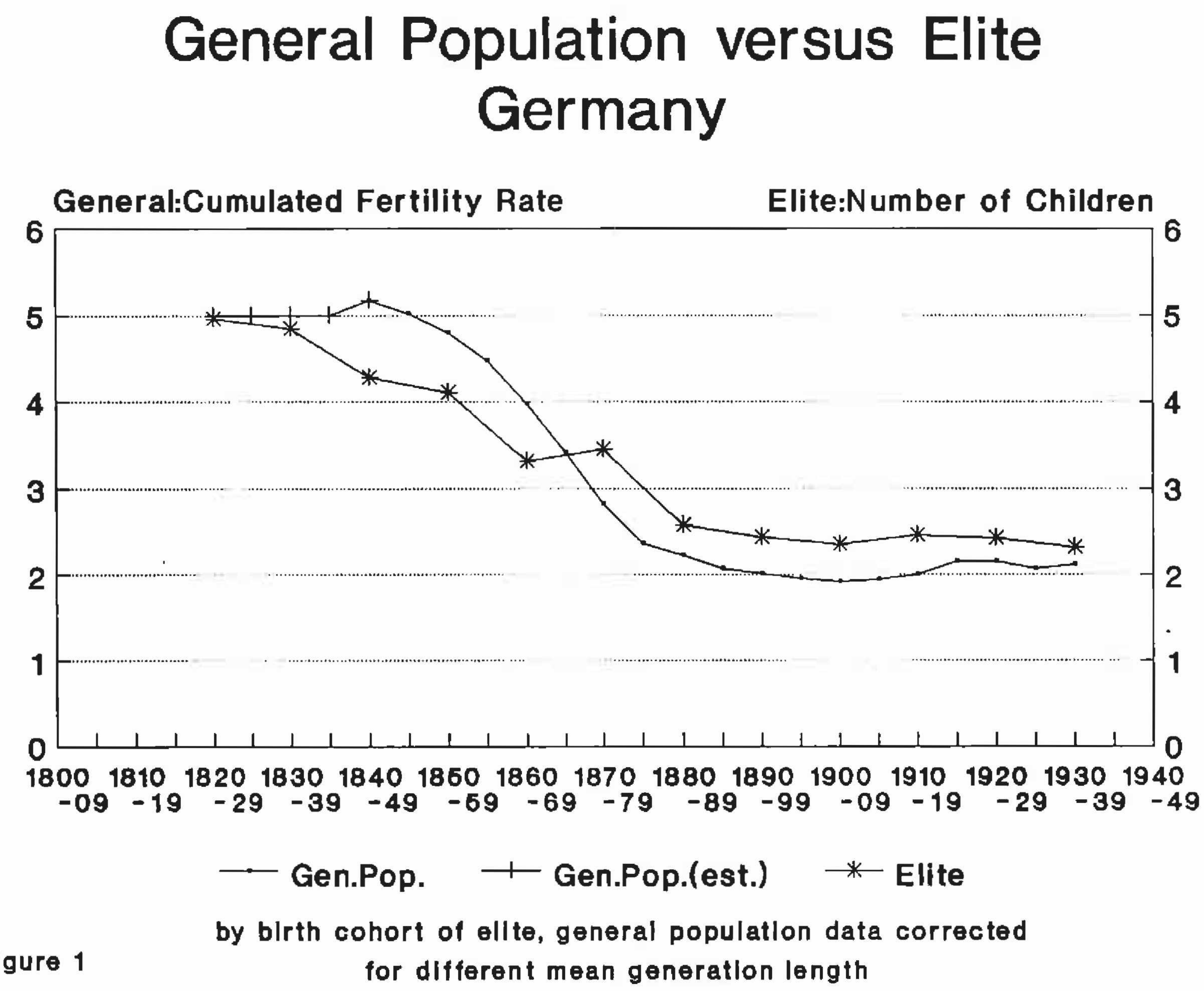
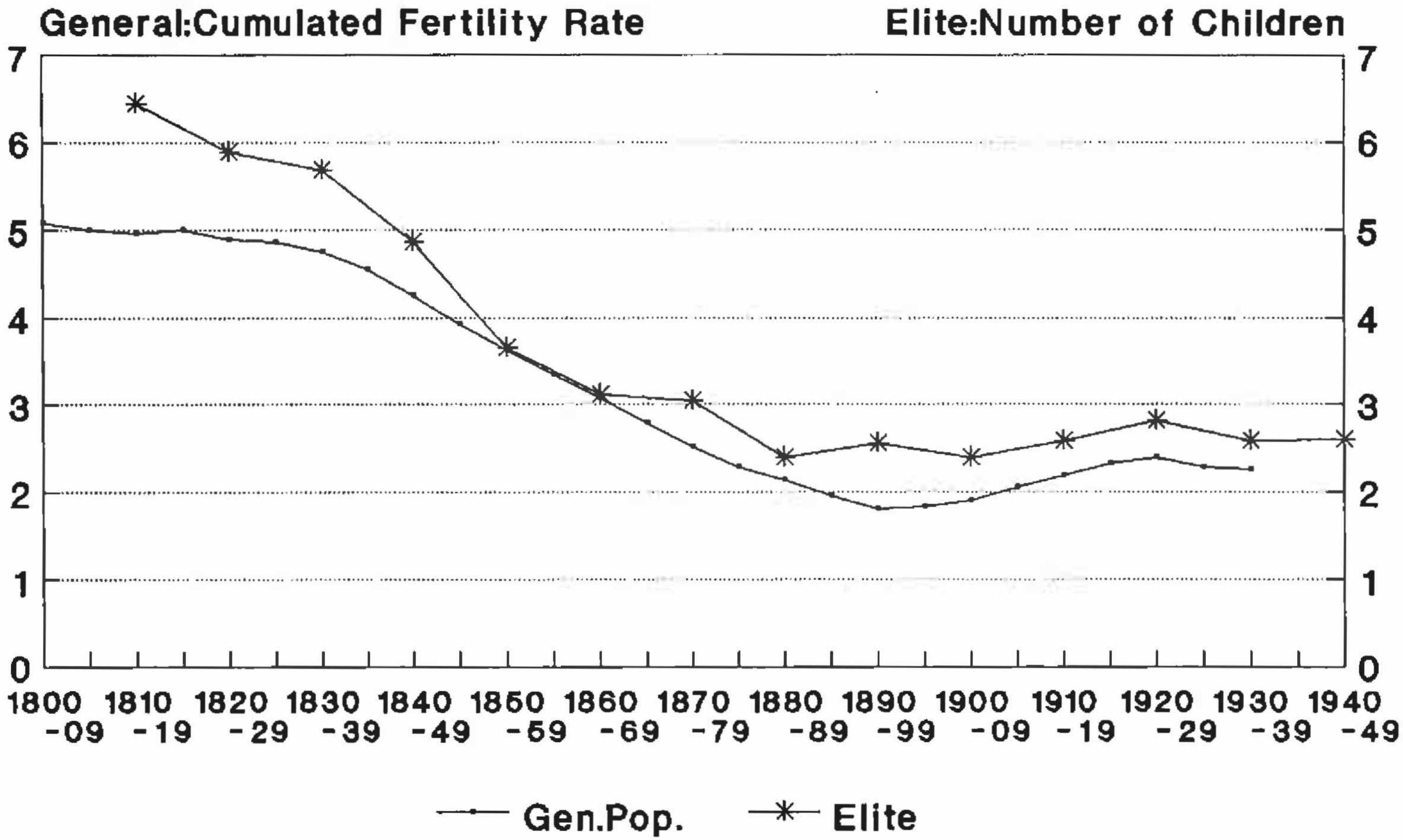

General Population versus Elite
Germany
General:Cumulated Fertility Rate
Elite:Number of Children
6
5
4
3
2
1
0
1800 -09
1810 -19
1820 -29
1830 -39
1840 -49
1850 -59
1860 -69
1870 -79
1880 -89
1890 -99
1900 -09
1910 -19
1920 -29
1930 -39
1940 -49
Gen.Pop.
Gen.Pop.(est.)
Elite
by birth cohort of elite, general population data corrected
for different mean generation length

Figure 1

General Population versus Elite
Great Britain



by birth cohort of elite, general population data corrected
for different mean generation length

Figure 2

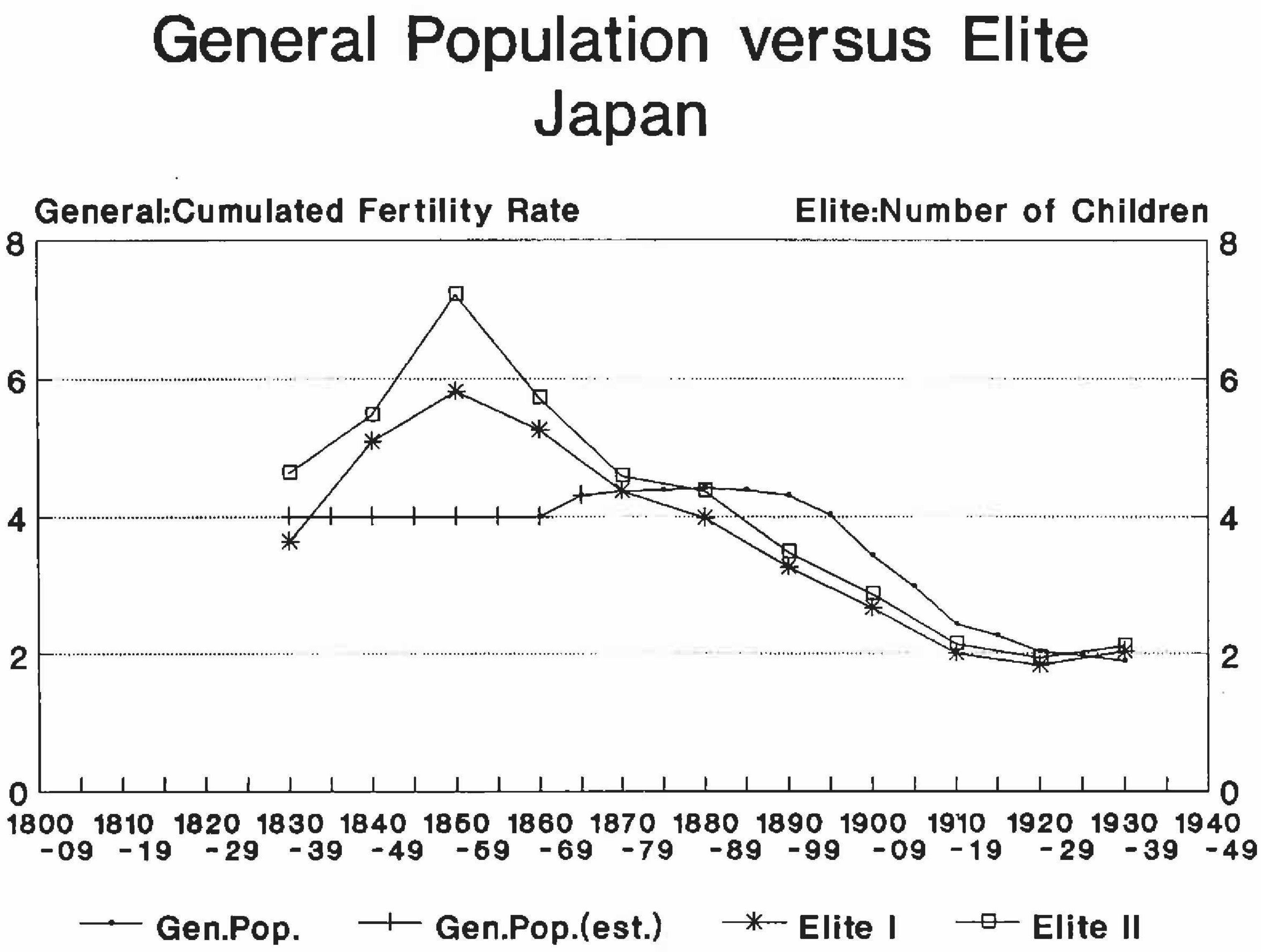


Figure 3 by birth cohort of elite, general population data corrected for different mean generation length

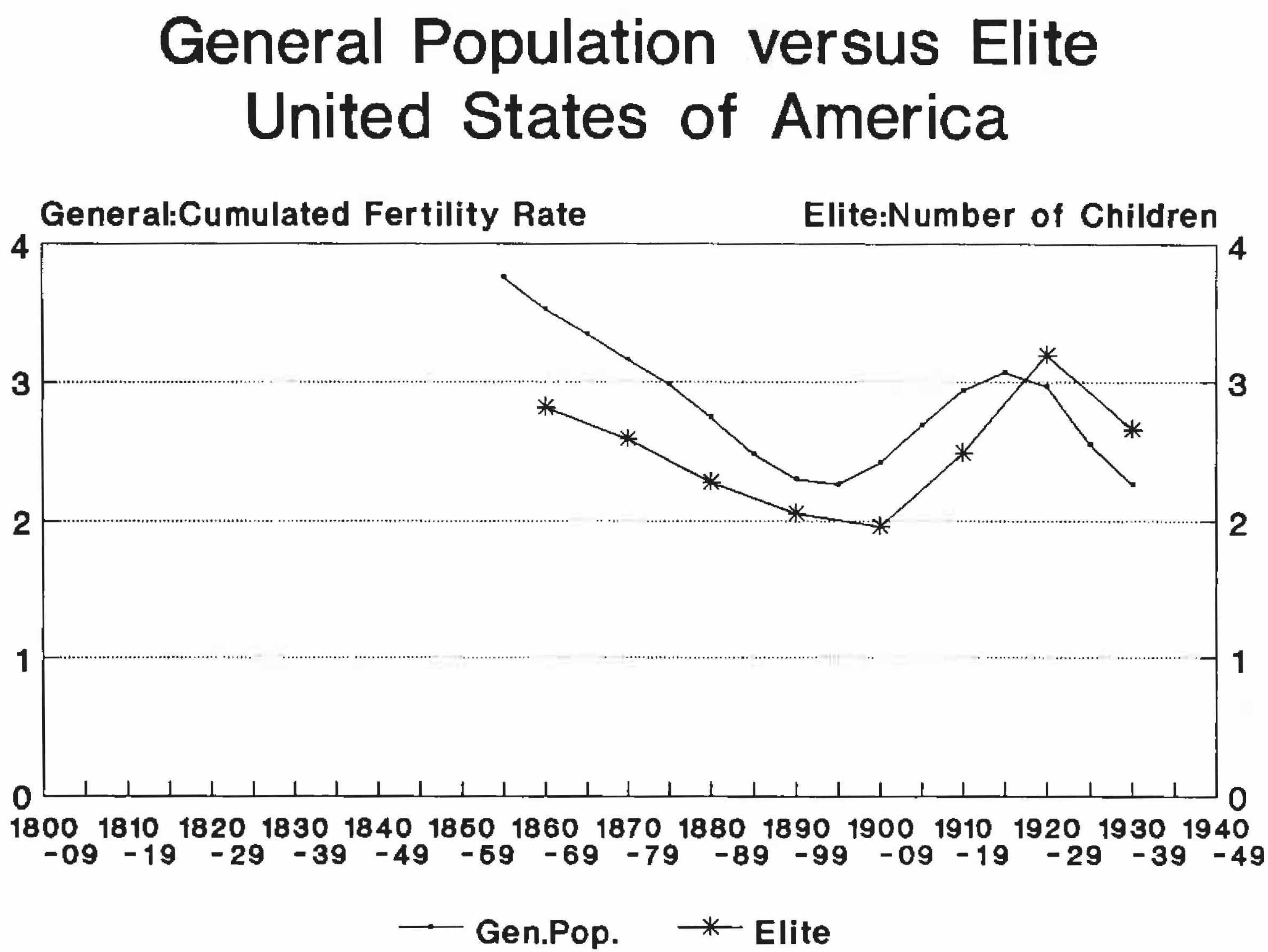


Figure 4

by birth cohort of elite, general population data corrected for different mean generation length

children of the elite per birth cohort of elite members together with the completed fecundity rates for the general population. In the figures the CFRs for the general population have been shifted 9 years to the left, in order to compensate for different generation length (see 2.5.). Note, that in the tables this shift has not been made.

Sex ratios of offspring in the sample did not differ conspicuously from the sex ratios in the general populations: Germany 113.83 (1473:1294); England 96.33 (1706:1771) (titled landowers: 78.77 (167:212), all others: 99.81 (1539:1550) **Footnote 1**); Japan 102.40 (1880:1836); USA 110.90 (1180:1064). Very few adopted children were listed in the sources; no specific analysis was performed.

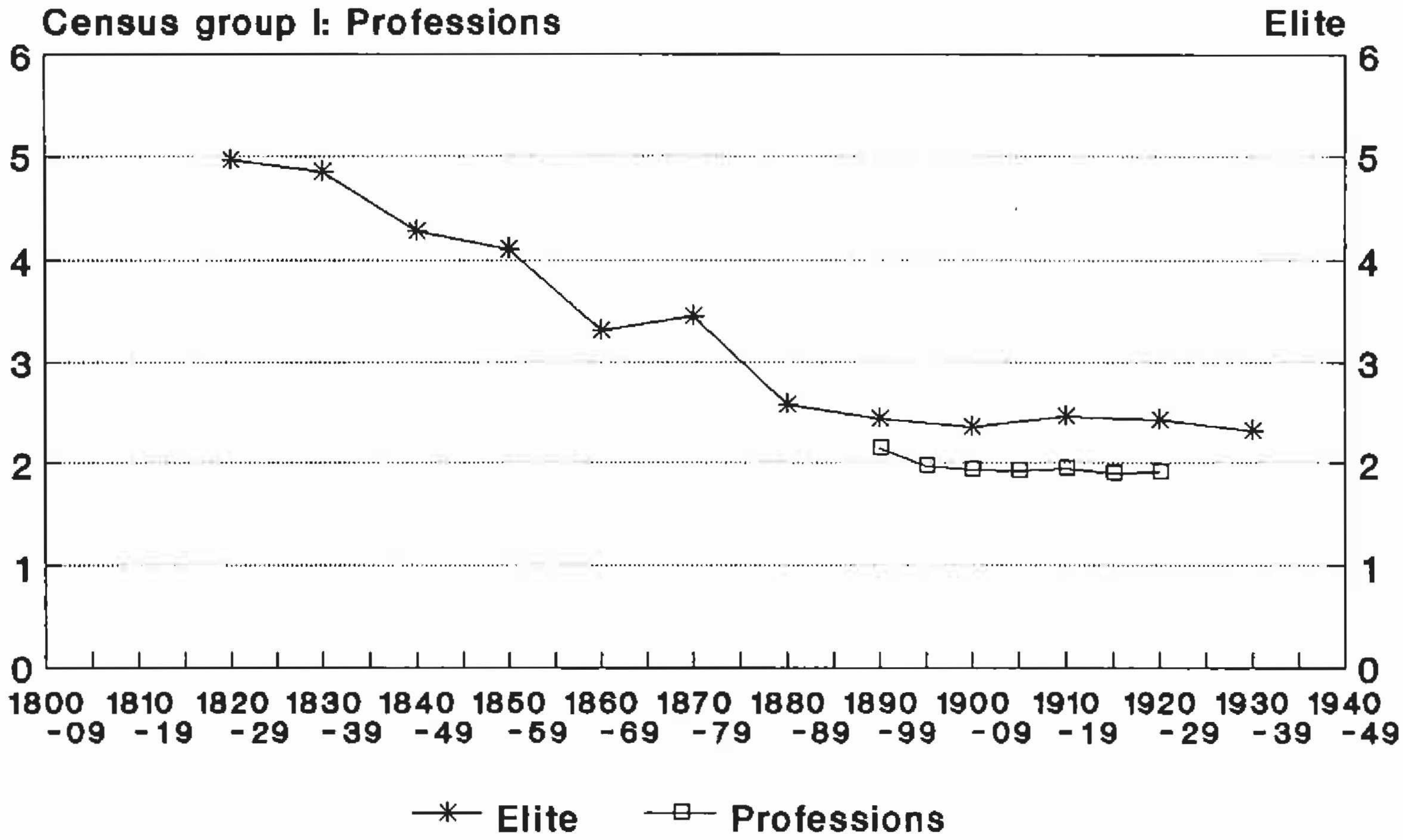
Analyses of covariance of the effects of occupation/profession of elite members on number of children, with cohort effects controlled showed no effect. There are two exceptions:
1) Landowning nobility and titled gentry had the same fecundity as commoners in all nations, save in Germany in the cohorts between 1820-1859. Here individuals with these characteristics had about 10% more children than their contemporaries in the elite. Making up for about 10% of all listings in these cohorts, they do not have an impact on the general findings.
2) In Germany and Great Britain, non-catholic clergymen had 5-10% more children than the rest of the national elite. In both countries, these individuals account for app. 2-3% of the listings per cohort. Likewise, an college/university education had no effect. From these findings it follows that any bias by profession in the selection of elite members in the listings of the sources has no effect on the findings of this study.
In addition, for Great Britain, Germany and the USA figures 5 to 7 give the fecundity differentials in number of children, weighted for reproductive value, for elites and for the "professions", the top occupation class in the census classification. Number of children was weighted in order to make the graphs comparable to the other figures; infant mortality was assumed to be the same for the professionals and the elites.

(insert figures 5 - 7 here)

4. Discussion

Great Britain is the easiest case to interpret. Figure 2 depicts a positive fecundity differential of the British elite over the general population from the beginning of the 19th century on. Germany also displays a positive differential, save for the birth cohorts 1840-1869. The British data display their minimum of the positive differentials exactly for the same cohort, which lends supports to the interpretation that this temporary depression is not an artefact. The depression cannot result from an overestimation of the childlessness - in our estimations the maximum of 15% has been assumed for the birth cohorts 1880-1910. It is easy to see that even if we estimate childlessness for the elite cohorts 1840-69 being lower than 10% this would not alter the below average fecundity for the elite during this time. Furthermore, it

Elite vs. Professions: Germany
Children ever borne



by birth cohort of elite, general population data corrected for different mean generation length

Figure 5

Elite vs. Professions: Great Britain
Children ever borne

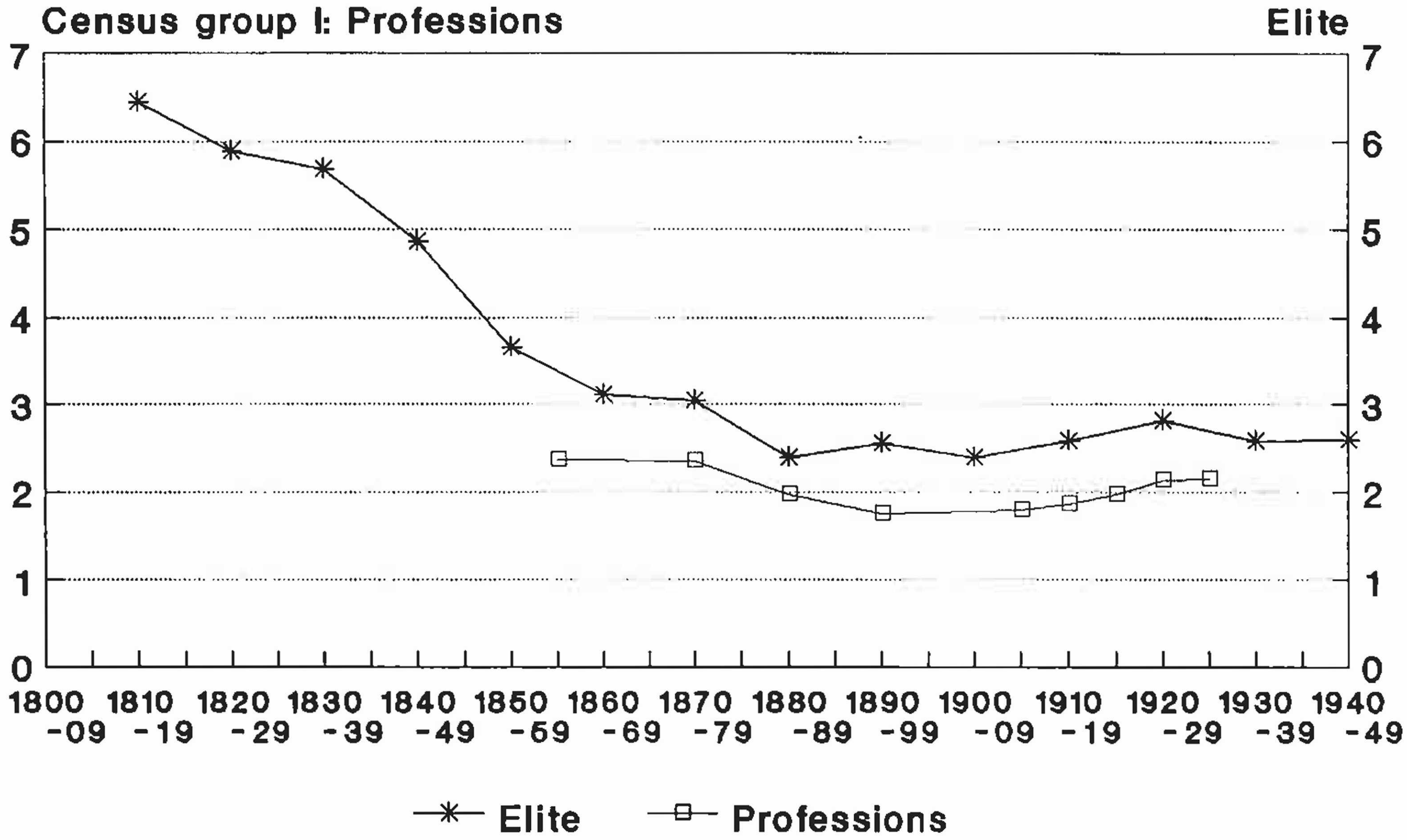


Figure 6

by birth cohort of elite, general population data corrected for different mean generation length

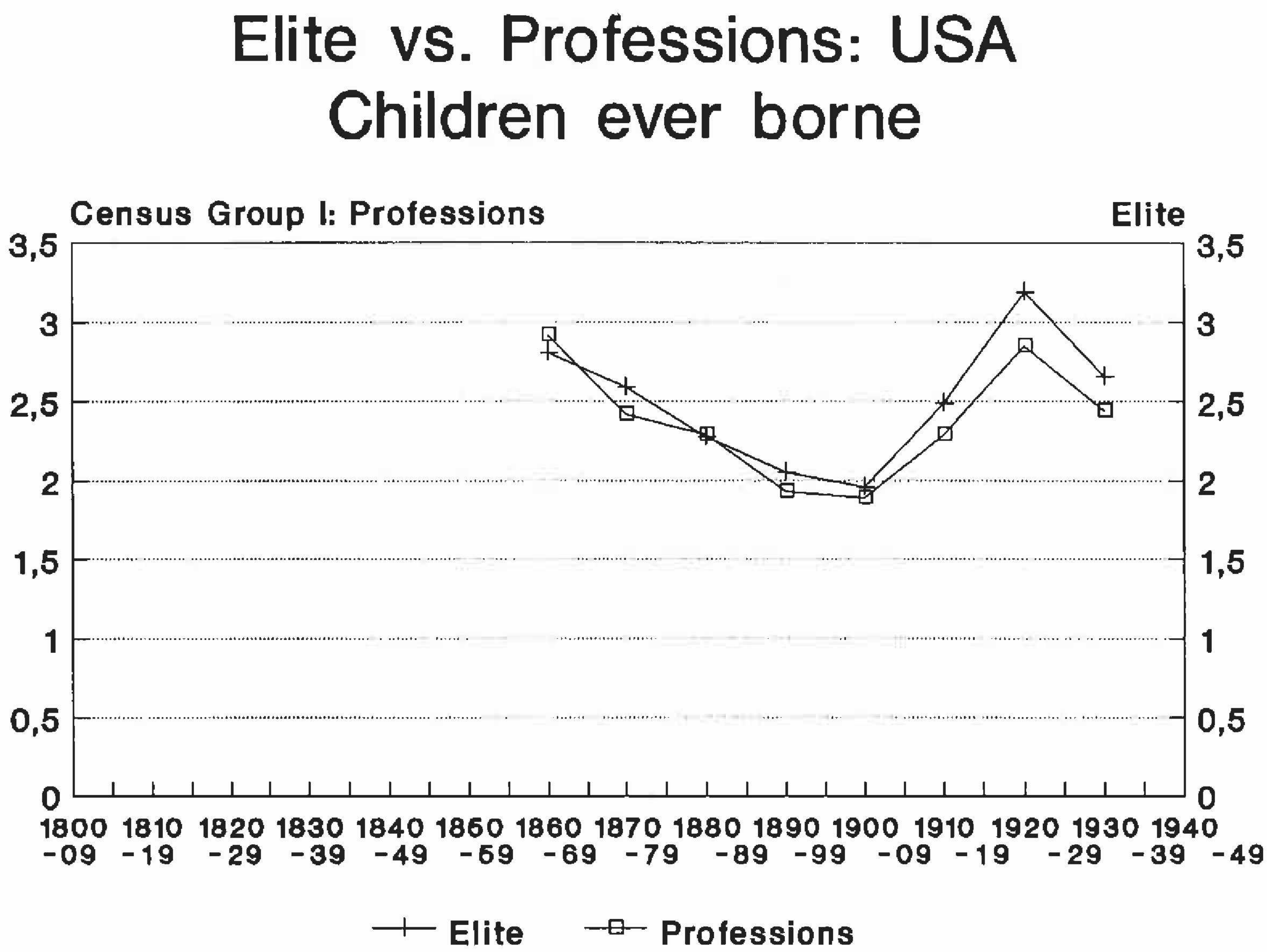


figure 7

by birth cohort of elite, general population data corrected for different mean generation length

seems difficult to explain the depression as the result of underestimating the class differential in infant mortality rates. The male elite members of the cohorts 1840-69 had their child bearing years between 1870-1914, a time of considerable general hygienic and medical improvements over the first two thirds of the 19th century. Consequently one should expect the class differentials in infant mortality to decrease, not to widen. Even if the infant mortality rates for the German High Nobility were taken as representative for all elite children, (Peller 1943, see 2.8.1.), the relative reproductive value of an elite child would not increase substantially for the depression cohorts. On the other hand, it seems to be implausible that the positive differentials before and after these ca. 30 depression cohorts are incorrect: at least for the cohorts from 1870 on because of shrinking absolute infant mortality the data base becomes even more reliable, the error margin smaller. Thus, the depression in reproduction differentials for the elite birth cohorts 1840-69 probably is as real as the positive differentials before and thereafter; it may reflect the fact that demographic transition, which itself can be seen as an adaptation of reproductive strategies to a changing environment, took place earlier in the elites. In addition, there is a clear positive fecundity differential of elite members over the average professional, the average members of the elites' own marriage market in both countries for the whole time period observed.

The situation in Japan probably has to be interpreted along similar lines. The two scenarios of class differentials in infant mortality do not make much difference in those birth cohorts for which the numbers suggest a negative differential for the elites. One can argue that the class differentials in infant mortality began to decrease considerably later than in the West (Hanley 1974), and consequently, that the relative reproductive value of a child born to an elite member was even higher for the crucial birth cohorts 1870/80 to 1910/20 than estimated even in the high differential scenario. But again, the alternative interpretation also cannot be rejected out of hand, that demographic transition took place earlier in the elites than in the general population, thereby giving the latter a genuinely positive fecundity differential among these cohorts. In any case, however, also in Japan the most recent cohorts indicate a positive fecundity differential of elites over the general population.

The case of the United States is the most difficult one to interpret. The synchronicity of downward and upward trends in both the general population and elite members forbids any interpretation of demographic transition taking place at different times. Whoever wants to find a positive fecundity differential for the elites from the beginning of the observation period on, would have to argue that the differentials in infant mortality rates were much higher for the elite than for the top major occupation class in the censuses, which is, given the relatively low infant mortality rates from the beginning of this century on, not very likely. More probable seems the interpretation, that in the US with her fast growing population and enormous quantities of immigrants especially before WW I there may have been a genuine below average fecundity of elites, until the arrival of the cohorts which caused the baby boom of the 50s and early 60s. From these cohorts on, the differentials are positive for the elites. Easier to determine are the fecundity differentials of elite members over the average member of the top occupational census class, which were always positive.

The possibly great impact of differential fecundity variation on longterm reproductive success has already been mentioned. A computer simulation over 20 generations based on fecundity data over two generations of family lineages, in which a sample of West Point graduates was compared with a sample of retired US noncommissioned officers (XXXXX 1991b) suggested that the average longterm reproductive success of the former group may be 2 - 3 times as high than of the latter. The upperclasses, maybe because of their greater economic security, maybe because of other reasons, seem to reproduce more steadily, with fewer family members remaining childless. This greater steadiness (lower fecundity variation) alone guarantees a positive reproduction differential. On the other hand, there is no hint that elite children have a fecundity below the average of their marriage market. The sons of the British father-and-son pairs had a fecundity of 105% ($p < .08$) of their birth cohorts in the Who-is-Who. In the USA children borne into high status groups were found to have a higher fecundity than upstarts (Baltzell 1953; Tomasson 1966). Therefore it can be safely concluded that the differentials for longterm reproduction may be even more in favor of the elite than the differentials of fecundity in one generation indicate which were found in this study. Based on these findings we can assume, that not only the elites but also high status groups like the occupation census classes, even where they show a small negative fecundity differential nevertheless may have a higher longterm reproduction than the average population.

5. Conclusions

The purpose of this paper was to determine, whether there is a positive reproduction differential for the elites in modern societies, in comparison with the total population, and in comparison with the average member of the top occupation census class (professions and managerial positions) of their societies. It has been argued that any cross sectional comparisons are not convincing, and that only a positive differential over longer periods of time can be accepted as evidence. Measured with this yardstick, the hypothesis has been proven for Great Britain, and made very likely for Japan and Germany. The situation may be complicated by the demographic transition which occurred in elite families earlier than elsewhere in society. In Japan class differentials neither for infant mortality nor for fecundity were available. The case of the United States remains inconclusive. Perhaps the unique situation of a population with a constant influx of hyperfecund immigrants can account for the negative fecundity differential for the elite birth cohorts 1860-1919. On the other hand, the elite always displayed a positive fecundity differential over the top occupation census class. In the USA, however, as in the other three nations, the most recent elite cohorts included in the study displayed a positive fecundity differential over the general population. Together with theoretical and empirical results on a lower fecundity variation within family lineages in high status groups the findings allow to argue that elite members in these four major industrial nations have been reproductively more successful than the average members of their own marriage market, as well as the average members of their societies as a whole.

Footnote 1

The bias in the sex ratio for the titled landowners could be straightforwardly explained by the Trivers-Willard hypothesis, if it can be made plausible that the titled gentry and nobility actually formed a closed marriage market.

References

Annual Report of the Institute of Population Problems (with Selected Demographic Indicators. Vol. 1988, edited by the Institute of Population Problems, Ministry of Health and Welfare, Tokyo.

Ansell, Ch.(1874): Vital Statistics of Families in the Upper and Professional Classes (Quoted in Humphreys 1887, p. 258).

Antonovsky, A., Bernstein, J. (1977): Social Class and Infant Mortality. Soc. Sci. & Med. 11, 453-470.

Bailey, A.H., Day, A. (1861): Peerage Families' Experience Tables (Quoted in Humphreys 1887, p. 259).

Baltzell, D. (1953): Social mobility and fertility within an elite group. Milbank Memorial Fund Quarterly 31, 411-420.

Betzig, L. (1982): Despotism and Differential Reproduction: A Cross-Cultural Correlation of Conflict Asymmetry, Hierarchy, and Degree of Polygyny. Ethology and Sociobiology 3, 209-221.

Betzig, L. (1986): Despotism and Differential Reproduction: A Darwinian View of History. Aldine. Hawthorne N.Y.

Boone, J.L. (1986): Parental Investment and Elite Family Structure in Preindustrial States: A Case Study of Late Medieval-Early Modern Portuguese Genealogies. American Anthropologist 88, 859-878.

Boyden, S. (1987): Western Civilization in Biological Perspective: Patterns in Biohistory. Clarendon Press: Oxford.

Case, R.A.M., Coghill, Ch., Harley, J.L., Pearson, J.T. (1982): The Chester Beatty Research Institute Serial Abridged Life Tables. England and Wales 1841-1960. Part I: Tables, Preface and Notes. The Chester Beatty Research Institute, Institute of Cancer Research, Royal Cancer Hospital, London.

Chagnon, N.A. (1979): Is Reproductive Success Equal in Egalitarian Societies? In: Chagnon, N.A.; Irons, W. (eds.): Evolutionary Biology and Human Social Behavior. Duxbury Press: North Scituate MA.

Cowle, G. (1989): A Confederacy of Dunces. NEWSWEEK/June 12, 51-52.

Daly, M., Wilson, M. (1983): Sex, Evolution and Behavior. PWS Publishers: Boston.

Davis, K., Bernstam, M.S., Ricardo-Campbell, R. (1986): Below Replacement Fertility in Industrial Societies: Causes, Consequences, Policies. Supplement to Population and Development Review 12.

Dewsbury, D.A. (1982): Dominance Rank, Copulatory Behavior, and Differential Reproduction. The Quarterly Review of Biology 57, 135-159.

Dickemann, M. (1979): The Ecology of Mating Systems in Hypergynous Dowry Societies. Social Science Information, 18, 163-195.

Dictionary of Business Biography (1984-86): A Biographical Dictionary of Business Leaders Active in Britain in the Period 1860-1980, Vol I-V, ed. by D.J.Jeremy. Butterworth, London.

Dinkel, R. (1984): Sterblichkeit in Perioden- und Kohortenbetrachtung. Zeitschrift fuer Bevoelkerungswissenschaft 10, 477-500.

Ellison, P.T. (1983): Stochastic Selection and Life History Theory. Department of Anthropology, Harvard University, Cambridge, MA 01238, unpublished manuscript.

Essock-Vitale, S.M. (1984): The Reproductive Success of Wealthy Americans. Ethology and Sociobiology 5, 45-49.

Faux, S.F., Miller, J., Harold L. (1984): Evolutionary Speculations on the Oligarchic Development of Mormon Polygyny. Ethology and Sociobiology 5, 15-31.

Fertility Report from the 1971 Census (1983): England and Wales. Office of Population Censuses and Surveys, HMSO.

Festy, P. (1979): La Fecondite Des Pays Occidentaux de 1870 a 1970. Presses Universitaires de France: Paris.

Flinn, M.V. (1986): Correlates of Reproductive Success in a Carribean Village. Human Ethology 14, 225-243.

Freedman, D. (1963): The Relation of Economic Status and Fertility. American Economic Review 53, 414-426.

Glass, D.V., Grebenik, E. (1954): The Trend and Pattern of Fertility in Great Britain. Papers of the Royal Commission on Population Vol. VI, London: HMSO.

Good, M., Farr, J.D., Grant, M., Good, B.J. (1980): Social Status and Fertility: A Study of a Town and Three Villages in Northwestern Iran. Population Studies 34, 311-319.

Hagood, M.J. (1948): Changing Fertility Differentials Among Farm Operator Families in Relation to Economic Size of Farm. Rural Sociology 13, 314-328.

Hanley, S.B. (1974): Fertility, Mortality, and Life Expectancy in Pre-modern Japan. Population Studies 28, 127-142.

Hareven, T.K., Vinovskis, M.A. (1975): Marital fertility, Ethnicity, and Occupation in Urban Families: an Analysis of South Boston and the South End in 1880. Journal of Social History, 69-93.

Hayami, A. (1980): Class Differences in Marriage and Fertility among Tokugawa Villagers in Mino Province. Keio Economic Studies 17: 1-16 (Quoted in Vining 1986).

Heckh, G. (1952): Unterschiedliche Fortpflanzung laendlicher Sozialgruppen aus Suedwestdeutschland seit dem 17. Jahrhundert. Homo 3, 169-175.

Herrnstein, R.J. (1989): IQ and falling birth rates. Are the Best and Brightest Making too Few Babies? The Atlantic Monthly, May 1989, 73-79.

Hill, J. (1988): Reproductive and sociocultural success in a dual evolutionary model. J. Social Biol. Struct. 11, 337-352.

Hollingsworth, J.R. (1981): Inequality in Levels of Health in England and Wales, 1891-1971. Journal of Health and Social Behavior 22, 268-283.

Humphrey, N.A. (1887): Class Mortality Statistics. Journal of the Royal Statistical Society 50, 255-292.

Irons, W. (1979): Cultural and Biological Success. In: Chagnon, N.A.; Irons, W. (eds.): Evolutionary Biology and Human Social Behavior. Duxbury Press: North Scituate MA.

Jacobson, P.H. (1964): Cohort Survival For Generations Since 1840. Milbank Memorial Fund Quarterly 42, 36-53.

Johansson, S.R. (1986): Centuries of Childhood/Centuries of Parenting: Philippe Aries and the Modernization of Privileged Infancy. Journal of Family History 12, 343-365.

Johansson, S.R. (1987): Status Anxiety and Demographic Contraction of Privileged Populations. Population and Development Review 13, 439-470.

Kaplan, H., Hill, K. (1985): Hunting Ability and Reproductive Success among Male Ache Foragers. Preliminary Results. Current Anthropology 26, 131-133.

Kirk, D. (1957): The fertility of a Gifted Group: A Gtudy of the Number of Children of Men in Who's Who. In: The nature and transmission of the genetic and cultural characteristics of human populations. Milbank Memorial Fund.

Kiser, C.V., Schacter, D. (1949): Demographic Characteristics of Women in Who's Who. Milbank Memorial Fund Quarterly 27, 392-433.

Mackey, W.C., Coney, N. (1987): Human Sex Ratios as a Function of the Woman's Psychodynamics - A preliminary study. Ethology and Sociobiology 8, 49-60.

Lancaster, H.O. (1990): Expectations of Life. A Study in the Demography, Statistics and History of World Mortality. Springer: New York.

Marschalk, P. (1984): Bevoelkerungsgeschichte Deutschlands im 19. und 20. Jahrhundert. Suhrkamp: Frankfurt.

Matsumoto, R. (1939): Kaikyu to Jinko (Class and Population). Keio Shobo: Tokyo.

Mosk, C., Johannsson, S.R. (1986): Income and Mortality: Evidence from Modern Japan. Population and Development Review 12, 415-440.

Mulder, M.B. (1987): On Cultural and Reproductive Success: Kipsigis Evidence. American Anthropologist 89, 617-634.

Mulder, M.B. (1989): Polygyny and the Extent of Women's Contributions to Subsistence: A Reply to White. American Anthropologist 91, 178-180.

Peller, S. (1943): Studies on Mortality since the Renaissance. A. General Mortality of Women; B. Marternal Mortality; C. Infancy and Childhood. Bull. Hist. Med. 13, 427-61.

Reichshandbuch der Deutschen Gesellschaft 1930. Bd. I and II; ed. F. Toennis and R. Volz. Deutscher Wirtschaftsverlag: Berlin.

Sachse, W (1987): Goettingen im 18. und 19. Jahrhundert. Zur Bevoelkerungs- und Sozialstruktur einer deutschen Universitaetsstadt. Goettingen.

Seutemann, K. (1894): Kindersterblichkeit sozialer Bevoelkerungsgruppen. Verlag der H. Laupp'schen Buchhandlung: Tuebingen.

Sieff, D.F. (1990): Explaining Biased Sex Ratios in Human Populations. Current Anthropology 31, 25-48.

Sly, D., Richards, S. (1972): The Fertility of a Sample of American Elites. Social Biology 19: 393-400.

Smith, D.S. (1983): Differential Mortality in the United States before 1900. Journal of Interdisciplinary History 13, 735-659.

Smith, D.B., Smith, St. (1988): Parental rank and reproductive success of natal rhesus males. Anim. Behav., 36, 554-562.

Statistical Abstracts of the USA, published by US Department of Commerce, Volumes 1976-1988.

Statistical Yearbook of Japan, published by the Office of the Prime Minister, Volume 1989.

Steward, S., Glatzer, G. (1986): Expectations and Coping of Women Undergoing In Vitro Fertilization. Maternal Child.Nurs.J. 15, 103-113.

Stockwell, E.D. (1968): Population and People. Quadrangle: New York.

The Statistical History of the United States of America (1982): edited by US Bureau of the Census, published by US Department of Commerce.

Tomasson, R. (1966): Social Mobility and Family Size in Two High Status Populations. Eugenics quarterly 13, 113-121.

Trivers, R.L., Willard, D.E. (1973): Natural Selection of Parental Ability to Vary the Sex Ratio of Offspring. Science 1979, 90-92.

Turke, P.W., Betzig, L.L. (1985): Those who can do: Wealth, Status and Reproductive Success on Ifaluk. Ethology and Sociobiology 6, 79-86.

UN Demographic Yearbook 1949,1955,1978. United Nations: New York.

US Bureau of the Census (1943-47), 16th Census of the United States, Population, Differential Fertility 1940 and 1910. Five Volumes. Government Printing Office, Washington D.C.

US Bureau of the Census (1955), 17th Census of the United States, Detailed Population Characteristics. Government Printing Office, Washington D.C.

US Bureau of the Census (1964), 18th Census of the United States, Detailed Population Characteristics. Government Printing Office, Washington D.C.

US Bureau of the Census (1973), 19th Census of the United States, Detailed Population Characteristics. Government Printing Office, Washington D.C.

US Bureau of the Census (1982), 20th Census of the United States, Detailed Population Characteristics. Government Printing Office, Washington D.C.

Vessilier, M. (1989): La demographie des createurs. Population 44, 291-310.

Vining, D.R. (1986): Social versus Reproductive Success: The Central Problem of Human Sociobiology. The Behavioral and Brain Sciences 9, 167-216.

Voland, E. (1989): "Differential Parental Investment: Some Ideas on the Contact Area of European Social History and Evolutionary Biology. In: Standen, V.; Foley, R.A. (eds.): Comparative Socio-Ecology. Blackwell: Oxford.

Weigel, R.M., Blurton Jones, N.G. (1983): Workshop Report: Evolutionary Life History Analysis of Human Behavior. Ethology and Sociobiology 4: 233-245.

Weiss, V. (1990): Social Inequality and Time Lag in the Onset of Demographic Transition. Wissenschaftliche Zeitschrift der Humboldt-Universitaet zu Berlin, Reihe Gesellschaftswissenschaften 39, 361-366.

Wer ist's ? 1905 - 1928. Schmidt and Roemhild: Luebeck

Wer-ist-Wer ? 1947 - . Schmidt and Roemhild: Luebeck

Who-is-Who (in Great Britain), 1897 - . Adam and Charles Black: London

Who-was-Who (in Great Britain), vol I - VIII. Adam and Charles Black: London

Who-is-Who in America, 1897 - . Macmillan Directory Division: Wilmette, IL.

Who-was-Who in America, vol I - VII. Macmillan Directory Division: Wilmette, IL.

Wrigley, E.A., Schofield, R.S. (1981): The Population History of England 1541-1871. Edward Arnold: Cambridge.

Wrong, D. (1967): Population and Society. Random House: NYC.

Wrong, D. (1980): Class Fertility Trends in Western Nations. Arno Press: NYC.

ZUMA-Arbeitsberichte

80/15	Gerhard Arminger, Willibald Nagl, Karl F. Schuessler Methoden der Analyse zeitbezogener Daten. Vortragsskripten der ZUMA-Arbeitstagung vom 25.09. - 05.10.79
81/07	Erika Brückner, Hans-Peter Kirschner, Rolf Porst, Peter Prüfer, Peter Schmidt Methodenbericht zum "ALLBUS 1980"
81/19	Manfred Küchler, Thomas P. Wilson, Don H. Zimmerman Integration von qualitativen und quantitativen Forschungsansätzen
82/03	Gerhard Arminger, Horst Busse, Manfred Küchler Verallgemeinerte Lineare Modelle in der empirischen Sozialforschung
82/08	Glenn R. Carroll Dynamic analysis of discrete dependent variables: A didactic essay
82/09	Manfred Küchler Zur Messung der Stabilität von Wählerpotentialen
82/10	Manfred Küchler Zur Konstanz der Recallfrage
82/12	Rolf Porst "ALLBUS 1982" - Systematische Variablenübersicht und erste Ansätze zu einer Kritik des Fragenprogramms
82/13	Peter Ph. Mohler SAR - Simple AND Retrieval mit dem Siemens-EDT-Textmanipulationsprogramm
82/14	Cornelia Krauth Vergleichsstudien zum "ALLBUS 1980"
82/21	Werner Hagstotz, Hans-Peter Kirschner, Rolf Porst, Peter Prüfer Methodenbericht zum "ALLBUS 1982"
83/09	Bernd Wegener Two approaches to the analysis of judgments of prestige: Interindividual differences and the general scale
83/11	Rolf Porst Synopse der ALLBUS-Variablen. Die Systematik des ALLBUS-Fragenprogramms und ihre inhaltliche Ausgestaltung im ALLBUS 1980 und ALLBUS 1982
84/01	Manfred Küchler, Peter Ph. Mohler Qualshop (ZUMA-Arbeitstagung zum "Datenmanagement bei qualitativen Erhebungsverfahren") - Sammlung von Arbeitspapieren und -berichten, Teil I + II
84/02	Bernd Wegener Gibt es Sozialprestige? Konstruktion und Validität der Magnitude-Prestige-Skala

84/03 Peter Prüfer, Margrit Rexroth
Erfahrungen mit einer Technik zur Bewertung von Interviewerverhalten

84/04 Frank Faulbaum
Ergebnisse der Methodenstudie zur internationalen Vergleichbarkeit von Einstellungsskalen in der Allgemeinen Bevölkerungsumfrage der Sozialwissenschaften (ALLBUS) 1982

84/05 Jürgen Hoffmeyer-Zlotnik
Wohnquartiersbeschreibung. Ein Instrument zur Bestimmung des sozialen Status von Zielhaushalten

84/07 Gabriele Hippler, Hans-Jürgen Hippler
Reducing Refusal Rates in the Case of Threatening Questions: The "Door-in-the-Face" Technique

85/01 Hartmut Esser
Befragtenverhalten als "rationales Handeln" - Zur Erklärung von Antwortverzerrungen in Interviews

85/03 Rolf Porst, Peter Prüfer, Michael Wiedenbeck, Klaus Zeifang
Methodenbericht zum "ALLBUS 1984"

86/01 Dagmar Krebs
Zur Konstruktion von Einstellungsskalen im interkulturellen Vergleich

86/02 Hartmut Esser
Können Befragte lügen? Zum Konzept des "wahren Wertes" im Rahmen der handlungstheoretischen Erklärung von Situationseinflüssen bei der Befragung

86/03 Bernd Wegener
Prestige and Status as Function of Unit Size

86/04 Frank Faulbaum
Very Soft Modeling: The Logical Specification and Analysis of Complex Process Explanations with Arbitrary Degrees of Underidentification and Variables of Arbitrary Aggregation and Measurement Levels

86/05 Peter Prüfer, Margrit Rexroth (Übersetzung: Dorothy Duncan)
On the Use of the Interaction Coding Technique

86/06 Hans-Peter Kirschner
Zur Kessler-Greenberg-Zerlegung der Varianz der Meßdifferenz zwischen zwei Meßzeitpunkten einer Panel-Befragung

86/07 Georg Erdmann
Ansätze zur Abbildung sozialer Systeme mittels nicht-linearer dynamischer Modelle

86/09 Heiner Ritter
Einige Ergebnisse von Vergleichstests zwischen den PC- und Mainframe-Versionen von SPSS und SAS

86/11 Günter Rothe
Bootstrap in generalisierten linearen Modellen

87/01 Klaus Zeifang
Die Test-Retest-Studie zum ALLBUS 1984 - Tabellenband

87/02 Klaus Zeifang
Die Test-Retest-Studie zum ALLBUS 1984 - Abschlußbericht

87/04 Barbara Erbslöh, Michael Wiedenbeck
Methodenbericht zum "ALLBUS 1986"

87/05 Norbert Schwarz, Julia Bienias
What Mediates the Impact of Response Alternatives on Behavioral Reports?

87/06 Norbert Schwarz, Fritz Strack, Gesine Müller, Brigitte Chassein
The Range of Response Alternatives May Determine the Meaning of the Question: Further Evidence on Informative Functions of Response Alternatives

87/07 Fritz Strack, Leonard L. Martin, Norbert Schwarz
The Context Paradox in Attitude Surveys: Assimilation or Contrast?

87/08 Gudmund R. Iversen
Introduction to Contextual Analysis

87/09 Seymour Sudman, Norbert Schwarz
Contributions of Cognitive Psychology to Data Collection in Marketing Research

87/10 Norbert Schwarz, Fritz Strack, Denis Hilton, Gabi Naderer
Base-Rates, Representativeness, and the Logic of Conversation

87/11 George F. Bishop, Hans-Jürgen Hippler, Norbert Schwarz, Fritz Strack
A Comparison of Response Effects in Self-Administered and Telephone Surveys

87/12 Norbert Schwarz
Stimmung als Information. Zum Einfluß von Stimmungen und Emotionen auf evaluative Urteile

88/01 Antje Nebel, Fritz Strack, Norbert Schwarz
Tests als Treatment: Wie die psychologische Messung ihren Gegenstand verändert

88/02 Gerd Bohner, Herbert Bless, Norbert Schwarz, Fritz Strack
What Triggers Causal Attributions? The Impact of Valence and Subjective Probability

88/03 Norbert Schwarz, Fritz Strack
The Survey Interview and the Logic of Conversation: Implications for Questionnaire Construction

88/04 Hans-Jürgen Hippler, Norbert Schwarz
"No Opinion"-Filters: A Cognitive Perspective

88/05 Norbert Schwarz, Fritz Strack
Evaluating One`s Life: A Judgment of Subjective Well-Being

88/06 Norbert Schwarz, Herbert Bless, Gerd Bohner, Uwe Harlacher, Margit Kellenbenz
Response Scales as Frames of Reference:
The Impact of Frequency Range on Diagnostic Judgments

88/07 Michael Braun
Allbus-Bibliographie (7. Fassung, Stand: 30.6.88)

88/08 Günter Rothe
Ein Ansatz zur Konstruktion inferenzstatistisch verwertbarer Indices

88/09 Ute Hauck, Reiner Trometer
Methodenbericht
International Social Survey Program - ISSP 1987

88/10 Norbert Schwarz
Assessing frequency reports of mundane behaviors:
Contributions of cognitive psychology to questionnaire construction

88/11 Norbert Schwarz, B. Scheuring (sub.)
Judgments of relationship satisfaction: Inter- and intraindividual comparison strategies as a function of questionnaire structure

88/12 Rolf Porst, Michael Schneid
Ausfälle und Verweigerungen bei Panelbefragungen
- Ein Beispiel -

88/13 Cornelia Züll
SPSS-X. Anmerkungen zur Siemens BS2000 Version

88/14 Michael Schneid
Datenerhebung am PC - Vergleich der Interviewprogramme "interv+" und "THIS"

88/15 Norbert Schwarz, Bettina Scheuring
Die Vergleichsrichtung bestimmt das Ergebnis
von Vergleichsprozessen:
Ist - Idealdiskrepanzen in der Partnerwahrnehmung

88/16 Norbert Schwarz, Bettina Scheuring
Die Vergleichsrichtung bestimmt das Ergebnis von Vergleichsprozessen: Ist-Idealdiskrepanzen in der Beziehungsbeurteilung

89/01 Norbert Schwarz, George F. Bishop, Hans-J. Hippler, Fritz Strack
Psychological Sources Of Response Effects in Self-Administered And Telephone Surveys

89/02 Michael Braun, Reiner Trometer, Michael Wiedenbeck,
Methodenbericht. Allgemeine Bevölkerungsumfrage der Sozialwissenschaften - ALLBUS 1988 -

89/03 Norbert Schwarz
Feelings as Information:
Informational and Motivational Functions of Affective States

89/04 Günter Rothe
Jackknife and Bootstrap:
Resampling-Verfahren zur Genauigkeitsschätzung von Parameterschätzungen

89/05 Herbert Bless, Gerd Bohner, Norbert Schwarz und Fritz Strack
Happy and Mindless?
Moods and the Processing of Persuasive Communications

89/06 Gerd Bohner, Norbert Schwarz und Stefan E. Hormuth
Die Stimmungs-Skala: Eine deutsche Version des "Mood Survey" von Underwood und Froming

89/07 Ulrich Mueller
Evolutionary Fundamentals of Social Inequality, Dominance and Cooperation

89/08 Robert Huckfeldt
Noncompliance and the Limits of Coercion:
The Problematic Enforcement of Unpopular Laws

89/09 Peter Ph. Mohler, Katja Frehsen und Ute Hauck
CUI - Computerunterstützte Inhaltsanalyse
Grundzüge und Auswahlbibliographie zu neueren Anwendungen

89/10 Cornelia Züll, Peter Ph. Mohler
Der General Inquirer III -
Ein Dinosaurier für die historische Forschung

89/11 Fritz Strack, Norbert Schwarz, Brigitte Chassein, Dieter Kern, Dirk Wagner
The Salience of Comparison Standards and the Activation of Social Norms: Consequences for Judgments of Happiness and their Communication

89/12 Jutta Kreiselmaier, Rolf Porst
Methodische Probleme bei der Durchführung telefonischer Befragungen: Stichprobenziehung und Ermittlung von Zielpersonen, Ausschöpfung und Nonresponse, Qualität der Daten.

89/13 Rainer Mathes
Modulsystem und Netzwerktechnik.
Neuere inhaltsanalytische Verfahren zur Analyse von Kommunikationsinhalten.

89/14 Jutta Kreiselmaier, Peter Prüfer, Margrit Rexroth
Der Interviewer im Pretest.
Evaluation der Interviewerleistung und Entwurf eines neuen Pretestkonzepts. April 1989.

89/15 Henrik Tham
Crime as a Social Indicator.

89/16 Ulrich Mueller
Expanding the Theoretical and Methodological Framework of Social Dilemma Research

89/17 Hans-J. Hippler, Norbert Schwarz, Elisabeth Noelle-Neumann
Response Order Effects in Dichotomous Questions:
The Impact of Administration Mode

89/18 Norbert Schwarz, Hans-J. Hippler, Elisabeth Noelle-Neumann, Thomas Münkel
Response Order Effects in Long Lists:
Primacy, Recency, and Asymmetric Contrast Effects

89/19 Wolfgang Meyer
Umweltberichterstattung in der Bundesrepublik Deutschland

89/20 Michael Braun, Reiner Trometer
ALLBUS Bibliographie (8. Fassung, Stand: 30.6. 1989)

89/21 Günter Rothe
Gewichtungen zur Anpassung an Statusvariablen.
Eine Untersuchung am ALLBUS 1986

89/22 Norbert Schwarz, Thomas Münkel, Hans-J. Hippler
What determines a "Perspective"?
Contrast Effects as a Function of the Dimension
Tapped by Preceding Questions

89/23 Norbert Schwarz, Andreas Bayer
Variationen der Fragenreihenfolge als Instrument
der Kausalitätsprüfung: Eine Untersuchung zur Neu-
tralisationstheorie devianten Verhaltens

90/01 Norbert Schwarz, Fritz Strack, Hans-Peter Mai
Assimilation and Contrast Effects in Part-Whole
Question Sequences:
A Conversational Logic Analysis

90/02 Norbert Schwarz, Fritz Strack, Hans-J. Hippler, George Bishop
The Impact of Administration Mode on Response Effects in
Survey Measurement

90/03 Norbert Schwarz, Herbert Bless, Gerd Bohner
Mood and Persuasion: Affective States Influence the
Processing of Persuasive Communications

90/04 Michael Braun, Reiner Trometer
ALLBUS-Bibliographie 90

90/05 Norbert Schwarz, Fritz Strack
Context Effects in Attitude Surveys:
Applying Cognitive Theory to Social Research

90/06 Norbert Schwarz, Herbert Bless, Fritz Strack,
Gisela Klumpp, Annette Simons
Ease of Retrieval as Information:
Another Look at the Availability Heuristic

90/07 Norbert Schwarz, Fritz Strack, Hans-J. Hippler
Kognitionspsychologie und Umfrageforschung:
Themen und Befunde eines interdisziplinären Forschungsgebietes

90/08 Norbert Schwarz, Hans-J. Hippler
Response Alternatives:
The Impact of their Choice and Presentation Order

90/09 Achim Koch
Externe Vergleichsdaten zum ALLBUS 1984, 1986, 1988.

90/10 Norbert Schwarz, Bärbel Knäuper, Hans-J. Hippler,
Elisabeth Noelle-Neumann, Leslie Clark
Rating Scales:
Numeric Values May Change the Meaning of Scale Labels

91/01 Denis J. Hilton
Conversational Inference and Rational Judgment

91/02 Denis J. Hilton
A Conversational Model of Causal Explanation

91/03 Joseph P. Forgas
Mood Effects on Interpersonal Preferences:
Evidence for Motivated Processing Strategies

91/04 Joseph P. Forgas
Affective Influences on Interpersonal Perception

91/05 Norbert Schwarz, Herbert Bless
Constructing Reality and Its Alternatives:
An Inclusion / Exclusion Model of
Assimilation and Contrast Effects in Social Judgment

91/06 Herbert Bless, Roland F. Fellhauer, Gerd Bohner, Norbert Schwarz
Need for Cognition: Eine Skala zur Erfassung von Engagement und
Freude bei Denkaufgaben

91/07 Norbert Schwarz, Bärbel Knäuper, E. Tory Higgins
Der Einfluß von Rangordnungsaufgaben auf nachfolgende Denkprozesse:
Zur Aktivierung prozeduraler Sets

91/08 Bettina Scheuring, Norbert Schwarz
Selbstberichtete Verhaltens- und Symptomhäufigkeiten:
Was Befragte aus Antwortvorgaben des Fragebogens lernen

91/09 Norbert Schwarz, Herbert Bless
Scandals and the Public's Trust in Politicians:
Assimilation and Contrast Effects

91/10 Rolf Porst
Ausfälle und Verweigerungen bei einer telefonischen Befragung

91/11 Uwe Blien, Heike Wirth, Michael Müller
Identification risk for microdata stemming from official statistics

91/12 Petra Beckmann
Methodological Report ISSP 1989

91/13 Martina Wasmer, Achim Koch, Michael Wiedenbeck
Methodenbericht zur "Allgemeinen Bevölkerungsumfrage der
Sozialwissenschaften" (Allbus) 1990.

91/14 Uwe Blien, Oded Löwenbein
Einkommensanalysen auf der Grundlage amtlicher Daten und
Umfragedaten: Ergebnisse zur betrieblichen Seniorität und
Arbeitslosigkeit.

91/15 Petra Beckmann, Peter Mohler, Rolf Uher,
ISSP Basic Information on the ISSP Data Collection 1985 - 1994

91/16 Norbert Schwarz
In welcher Reihenfolge fragen?
Kontexteffekte in standardisierten Befragungen

91/17 Ellen D. Riggle, Victor C. Ottati, Robert S. Wyer, Jr.
James Kuklinski, Norbert Schwarz
Bases of Political Judgments:
The Role of Stereotypic and Non-stereotypic Information

91/18 Dagmar Krebs
Was ist sozial erwünscht?
Der Grad sozialer Erwünschtheit von Einstellungsitems

91/19 Michael Braun, Reiner Trometer
ALLBUS-Bibliographie

91/20 Michael Schneid
Einsatz computergestützter Befragungssyteme
in der Bundesrepublik Deutschland

91/21 Rolf Porst, Michael Schneid
Software-Anforderungen an
computergestützte Befragungssysteme